

The University of Memphis



from the stairwell series gelatin silver print by Yancey Allison Master of Fine Arts in Photography 2001

The University of Memphis Graduate Bulletin 2001-2003

Volume 88

July 2001

For students whose initial enrollment occurs Fall 2001–Summer 2002, this edition of the Bulletin is valid through Summer 2008; for those whose enrollment occurs Fall 2002–Summer 2003, the validity period ends Summer 2009.

The **Bulletin of The University of Memphis** is published in four parts: *Undergraduate*, *Graduate*, *Cecil C. Humphreys School of Law*, and *Student Handbook*. All of these publications have been designed to provide current and prospective students, faculty, and staff with a comprehensive description of the University and its academic programs, regulations, services, and activities. Recommendations concerning these publications should be addressed to the Director of Curriculum Planning in the Office of Academic Affairs. A brief description of each publication follows:

The **Undergraduate Bulletin** contains a detailed description of undergraduate curriculum, admission information, requirements for graduation, and academic regulations. The inside front cover of this publication includes policy pertaining to degree requirements. Because students may graduate using the degree requirements from any valid catalog beginning with the year in which they were first admitted to undergraduate study, the issue received upon admission should be retained by the student.

The **Graduate Bulletin** contains a description of the University, specific requirements for each graduate program, and Graduate School regulations. It also includes admission requirements and information pertaining to fees.

The **Cecil C. Humphreys School of Law Bulletin** contains a description of the degree requirements, admission requirements, fees, and activities of the School of Law. An application form is also provided.

The **Student Handbook** provides new students with a brief description of student activities, campus services, policies and procedures related to Student Affairs, and the Code of Conduct. Each entering student receives a copy of this publication and is responsible for becoming familiar with the Code of Conduct and the policies and procedures.

The *Schedule of Classes* (Fall, Spring, and Summer) is an official extension of the **Bulletin** and is published prior to each academic term (Fall, Spring, and Summer). It contains a detailed outline of the registration procedure, individual course offerings (course, time, days, location, and instructor), and course or program revisions made since the publication of the most recent *Undergraduate Bulletin* and *Graduate Bulletin*. The Academic Calendar listing all deadlines is included in each **Bulletin** and in the *Schedule of Classes*. The Registration Calendar is found in the *Schedule of Classes* and at www.enrollment.memphis.edu/Registrar.

Directory for Correspondence

Visit the Graduate School's website at: <http://www.memphis.edu/gradschool>

Inquiries will receive attention if addressed to the administrative offices below at The University of Memphis, Memphis, Tennessee 38152

Admission	Graduate Admissions (901) 678-2911
Assistantships and Fellowships	Chair or coordinator of graduate studies of appropriate department
Degree Requirements	Chair of appropriate department or Dean of the Graduate School
Entrance Examinations	Testing Center (901) 678-2428
Financial Aid	Graduate Student Financial Aid (901) 678-4958
Graduate Studies	Chair or coordinator of graduate studies of appropriate department or director of graduate programs in appropriate college
Disabled Student Services	Student Disability Services (901) 678-2880
Housing	Residence Life (901) 678-2295
Institutes	Chair of appropriate department
Publications	Office of Media Relations (901) 678-2609
Registration	Registrar (901) 678-2810
Research and Grants	Vice Provost for Research (901) 678-2590
Testing arrangements	Testing Center (901) 678-2428
Transcripts	Records (901) 678-3927
Veterans Services	Veterans Services (901) 678-2996
Interim Vice Provost for Research	308 Administration Building (901) 678-2590
Interim Dean of the Graduate School	308 Administration Building (901) 678-2531
President of the University	341 Administration Building (901) 678-2234

The University reserves the right to cancel or alter any part of this bulletin without notice (subject to the following):

The course offerings of The University of Memphis are continually under examination and revision. This bulletin presents the offerings and requirements in effect at the time of publication, but is no guarantee that they will not be changed or revoked. The specific courses or activities constituting the degree requirements for any program are subject to substitution at any time prior to completion by the student. This bulletin is not intended to state contractual terms and does not constitute a contract between the student and The University of Memphis.

The University of Memphis reserves the right to make changes as required in course offerings, curricula, academic policies, and other rules and regulations affecting students to be effective whenever determined by the institution. These changes will govern current and formerly enrolled students. Enrollment of all students is subject to these conditions. Current information may be obtained from the offices listed above. Any fees, charges, or costs, and all academic regulations set forth in this bulletin are subject to

change at any time. All courses, programs, and activities described in this bulletin are subject to cancellation or termination by The University of Memphis or the Tennessee Board of Regents at any time.

The University of Memphis provides the opportunity for students to increase their knowledge by providing programs of instruction in the various disciplines and programs through faculty who, in the opinion of the institution, are trained and qualified for teaching at the college level. However, the acquisition of knowledge by any student is contingent upon the student's desire and ability to learn and the application of appropriate study techniques to any course or program. Thus, The University of Memphis must necessarily limit representation of student preparedness in any field of study to that competency demonstrated at that specific point in time at which appropriate academic measurements were taken to certify course or program completion. (TBR 2:04:00:01)

2001 ~ 2003

graduate
bulletin

Shirley C. Raines, Ed.D. **President**

Thomas G. Carpenter, Ph.D. **President Emeritus**

The eighty-ninth session will open August 24, 2001

<http://www.memphis.edu/gradschool>

The University of Memphis offers equal educational opportunity to all persons without regard to race, religion, sex, creed, color, national origin or disability. The University does not discriminate on these bases in recruitment and admission of students or in the operation of its programs and activities, as specified by federal laws and regulations. The designated coordinators for University compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 are the Vice President for Student Affairs and the Equal Opportunity Compliance Officer. Information in this document will be provided in alternate format upon request.

The University of Memphis is an Equal Opportunity/Affirmative Action University. It is committed to education of a non-racially identifiable student body.

The University of Memphis is one of 45 institutions in the Tennessee Board of Regents System, the seventh largest system of higher education in the nation. The TBR is the governing board for this system, which comprises six universities, 13 community colleges and 26 area technology centers. The TBR system enrolls more than 80 percent of all Tennessee students attending public institutions of higher education.

The University of Memphis is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor's, first professional, master's, educational specialist's, and doctoral degrees.

2001-2002 University Calendar

The calendar is subject to change at any time prior to or during an academic term due to emergencies or causes beyond the reasonable control of the institution, including severe weather, loss of utility services, or orders by federal or state agencies (TBR 2:04:00:01).

As future calendars are approved, they will be posted on the Web at:
<http://www.enrollment.memphis.edu/registrar/calendars/academic/default.htm>

Please check this URL for the 2002-2003 University Calendar.

FALL SEMESTER 2001

For detailed dates and times, see the *Schedule of Classes*.

FULL SESSION

August 23: New University faculty orientation
August 24: Meeting of entire University faculty
August 27: Classes begin
September 3: Holiday—Labor Day
October 6-9: Fall Break
November 22-25: Holiday—Thanksgiving
December 5: Classes end
December 6: Study Day
December 7-13: Final Examinations
December 15: Commencement

FIRST SESSION

August 27: Classes begin
October 17: Last day of classes and examinations

SECOND SESSION

October 18: Classes begin
December 5: Last day of classes and examinations

SPRING SEMESTER 2002

For detailed dates and times, see the *Schedule of Classes*.

FULL SESSION

January 14: Classes begin
January 21: Holiday—Martin Luther King's birthday
March 4-10: Spring Break
April 24: Classes end
April 25: Study Day
April 26-May 2: Final examinations
May 3: Commencement

FIRST SESSION

January 14: Classes begin
March 3: Last day of classes and examinations

SECOND SESSION

March 11: Classes begin
April 24: Last day of classes and examinations

SUMMER TERM 2002

For detailed dates and times, see the *Schedule of Classes*.

PRE SESSION

May 13: Classes begin
May 27: Holiday—Memorial Day
May 30: Last day of classes
May 31: Final examinations

FIRST SESSION

June 3: Classes begin
July 2: First session classes end
July 3: First session final examinations
July 4: Holiday—Independence Day

SECOND SESSION

July 9: Classes begin
August 8: Second session classes end
August 9: Second Session final examinations

FULL SUMMER SESSION

June 3: Classes begin
July 4-7: Holiday—Independence Day break (for full session only)
August 8: Full summer session classes end
August 9: Full summer Session final examinations
August 11: Commencement

- **Study Day** definition: The day prior to final examinations during most regular semesters. No academic activities shall be scheduled on Study Day. No study or review sessions that the study may feel obligated to attend may be scheduled.
- **Final Examination Period.** No examination shall be given at a time other than the scheduled time except with written permission from the department chair and the college dean. No social or athletic functions shall be scheduled during Final Examination Period. See the *Schedule of Classes* for examination schedule.

Intercollegiate athletics are exempt from the above policies.

Visit our Website at: <http://www.memphis.edu/gradschool>

Our homepage contains useful information about The University of Memphis and its Graduate School as well as links to area resources.

IMPORTANT DATES FOR DEGREE CANDIDATES

COMMENCEMENT DATES, 2001-2002

LAST DAY FOR:	December 15, 2001	May 3, 2002	August 11, 2002
Filing Intent to Graduate Card with the Graduate School:	September 6	January 24	June 7
Filing Application for Master's and Doctoral Candidacy Form:	September 6	January 24	June 7
Submission of defended thesis or dissertation to Graduate School for review:	November 16	April 5	July 17
Final submission of thesis, dissertation, and master's comprehensive examination results to the graduate school (doctoral comprehensive exams due one week after grading):	November 30	April 19	July 26

GRADUATE SCHOOL FORMS

PURPOSE	FORM	DEADLINE/COMMENTS
ADMISSIONS PROCESS	Domestic application	At least 3-6 weeks before beginning of entering semester—check with department for specific deadline, if any
	International Application	At least 4 months before beginning of entering semester—check with department for specific deadline, if any
	Departmental Application	Check with department if one is required and when
	Fast-track Non-Degree	For students who do not intend to pursue a degree
	Non-Degree Agreement	Must be filed by all non-degree students
	Readmission	Before registration following any semester not enrolled
	Change of Status	To apply to a different program for a new major or from master's to doctoral program
GRADES	Late Drop/Withdrawal	See college director of graduate studies
	Grade Appeal	Within 30 class days (M-F) of end of semester in which grade was received
COURSE CREDITS	Credit by Exam/Validation	See Section 2 for details
	Transfer Credit Evaluation	By end of second semester of enrollment
CANDIDACY	Comprehensive Exam Results	Immediately after exam; check with department for dates offered
	Master's Candidacy Form	Before beginning work on thesis or by date on graduation calendar
	Doctoral Candidacy Form	Before beginning work on dissertation
THESIS/DISSERTATION	Faculty Advisory Committee	As soon as committee is formed
	Proposal (Prospectus) Defense	Immediately upon approval
	Human Subjects Approval	Before beginning any research; submit with proposal defense form
	Defense	Immediately after scheduled defense
GRADUATION	Intent form	See graduation calendar in Bulletin or Schedule of Classes
	Candidacy Form	See graduation calendar in Bulletin or Schedule of Classes if not writing thesis; otherwise submit before beginning thesis/dissertation
COMPETITIVE AWARDS/ FELLOWSHIPS	Common Nomination Form	See individual award announcements
	TBR Minority Fellowship Application Form	See TBR announcement

Check with your academic unit or college for additional forms they may require and their deadlines.

This two-year issue of the Graduate School Bulletin of the University of Memphis is valid until Summer 2008 for students entering in Fall 2001. It is valid until Summer 2009 for students entering in Fall 2002.

1. The Graduate School

308 Administration Building
(901) 678-2531

Visit our Website at: <http://www.memphis.edu/gradschool>

The Graduate School of the University of Memphis is the center of advanced study and research within the University. The basic objectives of the Graduate School are:

1. To preserve and disseminate knowledge;
2. To extend knowledge through research; and
3. To prepare men and women to assume responsible and useful roles in a changing society.

The Doctor of Philosophy degree is awarded in audiology and speech-language pathology, biology, biomedical engineering, business, chemistry, communication arts, counseling psychology, earth sciences, educational psychology and research, engineering, English, history, mathematics, music, philosophy, and psychology. The degrees of Doctor of Audiology, Doctor of Education, and Doctor of Musical Arts are awarded by the School of Audiology and Speech-Language Pathology, the College of Education, and the College of Communication and Fine Arts, respectively. The College of Education also awards the degree of Education Specialist with a major in education. The Cecil C. Humphreys School of Law awards the Juris Doctor degree.

Master's programs are offered in forty-five major areas through six colleges and one school. The degrees include Master of Science, Master of Arts, Master of Fine Arts, Master of Arts in Liberal Studies, Master of Arts in Teaching, Master of Business Administration, Master of City and Regional Planning, Master of Music, Master of Health Administration, and Master of Public Administration.

Mission of the University

The University of Memphis is a doctoral degree-granting urban research university committed to excellence in undergraduate, graduate, and professional education; in the discovery and dissemination of knowledge; in service to the metropolitan community, state, and nation; and in the preparation of a diverse student population for successful careers and meaningful participation in a global society. The University of Memphis remains committed to the education of a non-racially identifiable student body and promotes diversity and access without regard to race, gender, religion, national origin, age, disability, or veteran status.

Statement of Values

The University of Memphis is committed to representing and teaching the highest academic values. Specifically, we:

- seek excellence in every activity and apply the highest feasible standards to the endeavors of faculty, staff, and students;
- protect academic freedom, insist on tolerance of diverse views, and encourage the rigorous pursuit of truth in an open forum;
- are committed to honesty, openness, and integrity in all of our processes and practices;
- serve the public interest and recognize responsibility for seeking ways to use our resources to meet public needs;

- provide equal opportunity for all qualified individuals, without regard to race, ethnicity, gender, or lifestyle choice and recognize an obligation to provide the appropriate environment to accommodate diversity;
- adhere to the principles of shared governance and shared responsibility, meaning that those who are responsible for and affected by the various functions of the University should have a voice in the policies that govern those actions and share responsibility for them; and
- advance the well being of those in our University community, including students, staff, faculty, alumni, and supporters.

History

The roots of The University date back to September 12, 1912, with the establishment and beginning of classes at West Tennessee State Normal School, which trained primary and secondary education teachers. However, the seeds for the normal school's creation were sown three years earlier, in 1909, when the Tennessee General Assembly passed a General Education law calling for the establishment and maintenance of three normal schools, one school located in each of the three grand divisions of the state.

The eastern edge of Memphis became the site for West Tennessee State Normal School, which in 1929 became West Tennessee State Teachers College. In 1941, the college expanded its curriculum in liberal arts, and the name was changed to Memphis State College, an institution serving three to four thousand students. The undergraduate program was reorganized into three schools and a graduate school was added in 1951.

Memphis State achieved university status in 1957. On July 1, 1994, the name was officially changed to The University of Memphis.

Governing Body

The governance and control of The University of Memphis is vested in the Tennessee Board of Regents. The composition and powers of the Board are set forth in Tennessee Code Annotated 49-8-201 through 49-8-203. The Board consists of eighteen members: twelve lay citizens appointed for six-year terms by the Governor from each congressional district and grand division of the state; one faculty member appointed for a one-year term; one student appointed for a one-year term by the Governor from among the system institutions; and four ex officio members—the Governor, the Commissioner of Education, the Commissioner of Agriculture, and the Executive Director of the Tennessee Higher Education Commission.

Organization

The schools and colleges that make up The University are the Graduate School, the Cecil C. Humphreys School of Law, the University College, the Loewenberg School of Nursing, the School of Audiology and Speech-Language Pathology, and five colleges offering graduate and undergraduate programs:

the College of Arts and Sciences, the Fogelman College of Business and Economics, the College of Communication and Fine Arts, the College of Education, and the Herff College of Engineering.

The Memphis Community

Memphis is one of the South's largest and most attractive cities. As a medical, educational, communication, distribution, and transportation center, Memphis offers a rich and full range of research opportunities and cultural experiences. The city, known worldwide for its musical heritage as home of the blues and the birthplace of rock and roll, has many fine restaurants, museums, and theaters, as well as one of the nation's largest urban park systems. Annual events include the St. Jude/Liberty Bowl Football Classic, Memphis in May International Festival, Kroger/St. Jude Tennis Tournament, Africa in April Cultural Awareness Carnival, Federal Express/St. Jude Memphis Golf Classic, Carnival Memphis, and Mid-South Fair. Tourist attractions include the Beale Street Historic District, the National Civil Rights Museum, the Center for Southern Folklore, and Elvis Presley's home, Graceland. The medical complex in Memphis is the South's largest and one of the nation's foremost centers of medical research. A public transportation system connects the University and many other parts of the city.

The University's modern and beautifully landscaped campus is centrally located in an attractive residential area of Memphis, with shopping, recreation, and entertainment centers nearby. In addition to the Main Campus facilities, the University has research and athletic training facilities and married student housing on the South Campus, as well as teaching sites throughout West Tennessee.

Research Facilities

Library Facilities

The University Libraries include the Ned R. McWherter Library and five branch libraries: Audiology and Speech-Language Pathology, Chemistry, Mathematical Sciences, Music, and Earth Sciences. Each branch is contiguous to the department or school it serves.

The University Libraries' collection totals over one million print volumes. The collection also contains information resources in many other formats, including 2.7 million microform pieces, over 8 million archival pieces, 90 licensed databases, 500 federal databases, and a variety of other formats. The Government Publications Department, located in McWherter Library, is the Regional Depository for the State of Tennessee for federal documents. The department also serves as a depository for all State of Tennessee documents. The Special Collections Department's largest collection, the Mississippi Valley Collection, documents the history and culture of that region.

The University Libraries' holdings are indexed in the tomCat online catalog, which is available on over 200 workstations located throughout the libraries, on the campus network, and through the Internet. The Interlibrary Loan staff will borrow resources from other libraries when they are not owned by the University Libraries. The University Libraries maintain agreements with several local libraries that enable direct borrowing by students, faculty, and staff of the University of Memphis. For more information on library services or resources, contact the Reference Department.

Information Technology

The University of Memphis is committed to providing campus-wide information technology (IT) in support of research and instruction for students and faculty. The Division of Information Systems (IS) provides the infrastructure and support necessary for academic activities, networking, telecommunications, and administrative computing. The division provides education and training for widely used software and applications, maintains the campus information technology infrastructure, provides the leadership to involve students, faculty, and staff in technology decision-making, and leads the strategic planning process for the use of information technologies.

The IS HelpDesk (678-8888) is the first area of contact for students, staff, and faculty to establish accounts and report problems. The HelpDesk staff is the primary contact on questions related to software, telecommunications, network, and lab support. In addition they route and track questions to the most appropriate university personnel for resolution. Since the University operates on a Local Support Provider (LSP) model (i.e. schools and colleges as well as administrative units have departmental computer experts to assist them with technology), calls to the HelpDesk are frequently assigned to an LSP for resolution. However, the knowledge management system of the HelpDesk tracks the problem and its resolution for future reference. The HelpDesk also makes available desktop and server software for faculty computers and departmental servers.

Students can access two IS-supported 24-hour computer labs (one of which is a Super Lab and Smart Classroom) and 67 other departmental labs located in various buildings and residence halls throughout the University. Over 30 smart classrooms with a full range of multimedia equipment are available for use by all faculty members and each classroom building is equipped with EduCarts (SmartCarts) that can turn almost any classroom into a "smart room." Many departmental labs have extended evening and weekend hours and students have access to the Internet, e-mail, Microsoft software, and a host of academic-related applications in a variety of computing environments. All labs are equipped with printers and other peripheral devices.

Information Systems provides a variety of technology support services to faculty, staff, and students including software training, consulting assistance for on-line and web-assisted course development, software distribution, and web consulting. Students and faculty can attend free training seminars at the Training Center in Smith 412. The center is equipped with PCs, Macs, and smart presentation equipment. Faculty may reserve this facility as well as any of the smart classrooms for their instructional needs. Training courses and workshops are offered on all supported software. The Faculty Resource area in the Training Center contains the latest multimedia and computer equipment for faculty and instructors to learn technologies or create course material. Online CBT (Computer-Based Training) is available free to all students, faculty, and staff either over the web or through downloadable tutorials. There are currently over 200 courses available to choose from.

Information Systems supports and maintains the University's fiber network that connects all offices, computer labs, classrooms and auditoriums, and selected residence halls. IS is committed to advancing the use of technology to assist the University in education and research. As part of this effort, The University of Memphis is a full partner and an Early Adopter of Internet-2 technology for research and instruction.

IS provides all telecommunication services (such as FAX and long distance service), cable TV, and calling number ID. Most of these services are also available in the dormitories.

More information on the services provided by Information Systems can be found at the web address: <http://www.memphis.edu/is/>.

Bureau of Business and Economic Research

The Bureau of Business and Economic Research is the organized research and public service unit of the Fogelman College of Business and Economics. The programs of the Bureau include public service to government agencies (state and local) and the business community, continuing education, and applied general research.

Center for Earthquake Research and Information

The Center for Earthquake Research and Information was established in 1977 by the Tennessee Legislature to provide: (1) prompt reports and background information on regional earthquakes; (2) scientific research on the causes and effects of earthquakes and on the possibility of earthquake prediction; (3) studies related to the desirability of earthquake resistant construction; (4) advice to business, government, and the public on the methods, means, and feasibility of mitigating earthquake hazards.

The Center operates as a research organization of The University of Memphis and was designated as a Tennessee Center of Excellence in 1985. It supports graduate research in geophysics, active tectonics, and earthquake engineering. It cooperates with the Department of Geological Sciences in offering a Bachelor's and Master's degree concentration in geophysics, and a Ph.D. degree in earth sciences.

Center for Research in Educational Policy

The Center for Research in Educational Policy was established by the Tennessee General Assembly in 1985. The mission of the Center is to implement a research agenda to address issues associated with policies and practices in the public schools of Tennessee and the nation. This research agenda was developed in consultation with three advisory councils composed of nationally prominent education authorities, persons representing constituencies within the state of Tennessee, and university faculty.

The Center contributes to the research and outreach missions of the University by forming collaborations with school and community leaders to identify educational policy issues in need of resolution and by mobilizing university and community resources to address these issues in primary and secondary schools. Other outreach activities include co-sponsorship of the annual Memphis Urban Education Symposium; regional, state, and international professional conferences; joint sponsorship of several state academies for school leaders; and electronic on-line support for practicing education professionals.

Center for Research on Women

Founded in 1982, the Center for Research on Women (CROW), located in the College of Arts and Sciences, is nationally recognized for its pioneering work on race, class, and gender. CROW's mission is to conduct, promote, and disseminate scholarship on women and social inequality. Its approach

to research, theory, and programming emphasizes the structural relationships among race, class, gender, and sexual identity, particularly in the U.S. South and among women of color. CROW-affiliated faculty span the University. They are currently engaged in action-oriented, community-based research on women in Memphis and the U.S. South; in historically grounded research that makes visible global processes affecting the persistence of inequalities in the U.S. South; and in the development of feminist theories and methods. CROW offers postdoctoral fellowships to scholars studying race and gender in the U.S. South and provides graduate assistantships to students enrolled in the MA program in sociology.

Center for the Study of Higher Education

The Center for the Study of Higher Education, located in the College of Education, conducts research and sponsors workshops and conferences in higher and adult education. The Community College Student Experiences Questionnaire is located in the Center, as is the Leadership Institute in Judicial Education.

DNA Laboratory

The DNA Laboratory is a university facility providing access to resources required for modern molecular biology research. Custom nucleic acid synthesis and automated DNA sequencing are available on a fee basis to researchers both inside and outside the University. The Laboratory also houses a high-performance gel documentation system and a workstation with the GCG Wisconsin Package for nucleic acid and protein analysis.

Ecological Research Center

The Ecological Research Center (ERC) of the Department of Biology was established in 1974 on the South Campus of the University to conduct and coordinate research, teaching, and service activities in ecology and related areas.

Major areas of research include: fish culture, wildlife biology, endangered and threatened species, systematics, and reproductive physiology, and physiological responses to the environment. The ERC has formal research agreements with private, state, and federal organizations to jointly pursue biological problems of mutual interest. The US Fish and Wildlife Service, Wildlife and Habitat Management Office, has offices in the ERC.

The teaching program of the ERC provides training for students interested in pursuing careers in various fields and affords an opportunity for students to participate in activities involving contemporary environmental problems.

Public service activities are primarily directed toward promoting environmental awareness and providing information and consultation services to those concerned with the environment.

Edward J. Meeman Biological Station

The Edward J. Meeman Biological Station was established in 1967 to encourage and foster scientific pursuits in natural history, ecology, and environmental biology. Located about 23 miles northwest of the main campus and adjacent to Meeman-Shelby Forest State Park, the 623-acre station (with laboratory, classroom, and small conference facilities) provides students and faculty from The University of Memphis, as well as visiting investigators, with a unique site for research, teaching, and

service activities. The station is an integral part of the Department of Biology.

Fogelman Executive Center

The Fogelman Executive Center is a modern conference and training facility designed to meet the needs of executives, managers, and professionals in all organizational areas. The Center has fifty-one hotel rooms, fourteen conference and seminar rooms, and two dining rooms.

The staff of the Fogelman Executive Center provides coordination and planning services for all types of conferences and seminars. These services are available to professional level university groups and the Memphis business community.

Institute of Egyptian Art and Archaeology

The Institute, founded in 1984 and designated a Tennessee Center of Excellence in 1985, is a component of the Art Department at The University of Memphis. The Institute is dedicated to the study of the art and culture of ancient Egypt through teaching, research, exhibition, and excavation. It is staffed by Egyptologists who are faculty members of the Art Department and the History Department. Its research library consists of more than 6000 Egyptological books and periodicals including rare and out-of-print volumes. Supporting the Institute's programs is the Art Museum at the University of Memphis, which houses the Institute's growing collection of Egyptian antiquities, the largest in the Mid-South. The Institute also sponsors an epigraphic project at the Great Hypostyle Hall of Karnak Temple, Luxor, Egypt.

Institute for Intelligent Systems

The Institute for Intelligent Systems (IIS) is designed to bring together research and training in the broad areas of cognitive science, complex dynamical systems, artificial intelligence, and massively parallel computing (neural computing). The mission of the IIS includes basic research supported by grants from funding agencies and applied research supported by industrial/governmental contracts. The Institute spans the disciplines of cognitive psychology, computer science, philosophy of mind, neuroscience, linguistics, physics, and mathematics. Training includes graduate courses, thesis and dissertation research, workshops, and seminars.

Integrated Microscopy Center

The Integrated Microscopy Center (IMC) houses microscopes, including light and fluorescent microscopes, a confocal laser scanning microscope, scanning and transmission electron microscopes, and ancillary equipment used to prepare samples. The Center is a resource facility of The University of Memphis, designed to provide expertise in the use of microscopy to graduate students, faculty, and researchers at The University of Memphis and throughout the immediate area.

Marcus W. Orr Center for the Humanities

The Marcus W. Orr Center for the Humanities promotes interdisciplinary research and teaching in the humanities at The University of Memphis. Its various programs—including several lecture series and the sponsorship of visiting scholars, faculty seminars, and symposia—are designed to encourage scholarly collaboration across departmental and college boundaries. It also seeks to promote the University's scholarly re-

sources in the Memphis community, by offering a variety of public programs. The Center was founded in 1987 and renamed in 1991 in memory of former history professor Dr. Marcus W. Orr.

Regional Economic Development Center

The Center represents the University in its outreach function in the field of economic development planning. In providing technical and management assistance to the public and private sectors, the Center also serves as a laboratory for interdisciplinary research and service by faculty and graduate students in solving problems of urban and regional development. The Center's professional planning staff have academic appointments and teach courses in the Division of City and Regional Planning.

Speech and Hearing Center

Located in the medical center of Memphis, this facility became affiliated with the University in 1967. An additional site is located on the South Campus. Both locations serve children and adults with communication disorders. Students at the University may receive services at no charge, while faculty and staff are seen at 50% of normal charges. The University administers and operates the Center in cooperation with the Board of Directors of the Memphis Speech and Hearing Center, Inc.

Other Research Units

In addition to the units described above, The University of Memphis also recognizes a wide array of other research-oriented units:

- Anthropological Research Center
- Barbara K. Lipman Early Childhood Center and Research Institute
- Benjamin L. Hooks Institute for Social Change
- Center for Community Health (formerly the Prevention Center)
- Center for River Studies
- Center for Health Services Research
- Center for Manpower Studies
- Center for Rehabilitative and Employment Research
- Center for Urban Research and Extension
- Center for Voluntary Action Research
- Chucalissa Indian Museum (C.H. Nash Museum)
- Computational Research on Materials Institute at U of M (CROMIUM)
- FedEx Center for Cycle Time Research
- Groundwater Institute
- Industry/University Cooperative Research Center for Biosurfaces
- Institute for Gambling Education and Research
- Memphis Alliance for Public Health Research
- Neuropsychology Research Laboratory
- Oral History Research Office
- Robert Wang Center for International Business
- Southern Music Archive
- Transportation Studies Institute
- W. Harry Feinstone Center for Genomic Research

Recognized Centers and Chairs of Excellence

The University of Memphis has been designated by the Tennessee Higher Education Commission as a location for centers and chairs of excellence. The units listed below receive special funding by the state in recognition of their status.

Centers of Excellence

- Center for Applied Psychological Research
- Center for Earthquake Research and Information
- Center for Research in Educational Policy
- Center for Research Initiatives and Strategies for the Communicatively Impaired
- Center of Excellence in Egyptian Art and Archaeology

Chairs of Excellence

- Arthur Andersen and Company Alumni Chair in Accounting
- Bornblum Chair in Judaic Studies
- Federal Express Chair in Management Information Systems
- W. Harry Feinstone Chair in Molecular Biology
- W. Harry Feinstone Chair in Functional Genomics
- Morris S. Fogelman Chair in Real Estate
- Helen and Jabie Hardin Chair of Economics/Managerial Journalism
- Jabie Sanford Hardin III Chair in Combinatorics
- Herbert Herff Chairs in Biomedical Engineering
- Herbert Herff Chair in Law
- Dorothy K. Hohenberg Chair in Art History
- William A. and Ruth F. Loewenberg Chair in Nursing
- Plough Chair of Excellence in Audiology and Speech-Language Pathology
- William M. Morris Chair in International Economics
- Lillian and Morrie Moss Chair in English
- Lillian and Morrie Moss Chair in Philosophy
- Lillian and Morrie Moss Chair in Psychology
- Lillian and Morrie Moss Chair in Urban Education
- Sales and Marketing Executives, Inc. Chair in Sales
- Sparks Family Chair in International Business
- Thompson-Hill Chair in Accounting
- University of Memphis Chair in Free Enterprise Management
- Robert Wang Chair in International Business
- Wunderlich Chair in Finance

Academic Services

Academic Personnel Services

The Office of Academic Personnel Services conducts The University of Memphis' program for student evaluation of instruction. The Student Instructional Rating Systems (SIRS) uses a comprehensive approach for collecting, analyzing, and reporting student reactions to certain aspects of classroom instruction. All teaching faculty are required to participate in the student evaluation program. SIRS are not to be adminis-

tered during the week of final exams. Faculty receive the completed forms and a computer generated summary at the beginning of the following semester. These documents, which are an important part of the dossier prepared for tenure and promotion, also provide useful information to individual faculty members for course development and/or improvement of instruction.

Minority Affairs

The Office of Minority Affairs houses such registered student organizations as the Black Student Association, Black Scholars Unlimited, the Hispanic Student Association, NAACP, and the Minority Association of Pre-Health Students. The office provides a venue where student groups as well as individuals can go to study, use office equipment, and interact with their peers and the office staff. In addition, the office deals with academic, social, and personal concerns that the students may need to address.

The Office of Minority Affairs also serves as a resource for students, providing information on scholarships, internships, employment opportunities, and community resources available to them. The office also works in conjunction with various other campus departments as well as community agencies to provide students with services that may assist them in academic and professional endeavors.

For more information, call 678-2054 or visit the office in the University Center, room 419.

Psychological Services Center

The Psychological Services Center offers psychotherapy and psychological evaluation services to children and adults. The clinic is open to the general public, as well as the University community. Fees are reduced for university students, staff, and faculty. The Center is located in room 126 of the Psychology Building. For appointments or information, contact the Center at 678-2147.

Student Disability Services

The Student Disability Services Office provides, arranges, and coordinates academic accommodations and support services to qualified students with disabilities to enable them to fully access the educational opportunities at The University of Memphis. To establish eligibility for disability accommodations and services, students are required to register with the Student Disability Services Office and provide current medical or psycho-educational documentation of the disability from a professional who is appropriately qualified to diagnose the particular disability. Disability information is strictly confidential, is not released without written consent, and does not appear on transcripts or any permanent record of the University.

Students must follow established university procedures for obtaining accommodations and services. Specific accommodations and services are determined on an individual basis and are based on documented functional limitations resulting from the disability. Services available include orientation to disability services, assessment of disability related needs, academic accommodation plans each semester, test accommodations, books on tape, note-takers, readers, scribes, interpreters, Braille, enlarged print, loan of adaptive aids and special equipment, adaptive computer lab, guidance and counseling, adapted

campus housing, accessible parking, and limited campus shuttle service.

Since some services require advance notice, applicants are requested to provide sufficient notice to Student Disability Services of anticipated needs and expected date of enrollment. For more detailed information, please contact the Director of Student Disability Services at 678-2880.

Academic Common Market

The Academic Common Market is designed to allow students from southern states to pay in-state tuition while attending The University of Memphis. This arrangement is available only for students whose home states do not offer the designated program. The participating states are Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. A list of available programs can be obtained from the state coordinator in a student's home state or from the Office of the Dean of the Graduate School. Current SREB common market guidelines and requirements may be found on the web at www.people.memphis.edu/~acadafflib/acm.html

There are two requirements: (1) Students must be fully admitted to a degree-seeking program that has been approved as an Academic Common Market program (non-degree and conditional students are ineligible); (2) Students must obtain a letter certifying residency from their home state's Academic Common Market coordinator.

International Students Office in the Center for International Programs and Services

The International Students and Services Office in the Center for International Programs and Services advises international students, faculty, staff, visiting scholars, and researchers regarding federal immigration regulations, health insurance matters, employment issues and personal concerns. In addition, the Office prepares federal documents necessary for international faculty, staff, and visiting scholars' entrance into the United States. This includes H, TN, O, and J visas for faculty and staff.

The Office also produces the federally mandated orientation for F-1 and J-1 visa holders new to campus. This provides information on federal and state laws and university policies, including social security and employment regulations, taxes, visa renewals, and all aspects of their legal non-immigrant status inside US borders. The International Students Office also frequently provides this information for in-country dependent family members of students, faculty, and researchers on campus, as well as to international applicants to the University and area colleges and university staff.

The Office also advises the International Students Association and several international student clubs. The International Students Association presents an annual International Night, the International Film Series, and various other cultural events.

Currently, the Office consists of Arda Beskardes, Immigration Specialist; Clar Nunis, International Students Advisor; and clerical staff. For more information, call 678-4271 or visit the website at: <http://cipsweb.memphis.edu>.

Oak Ridge Associated Universities

Since 1971, students and faculty of the University of Memphis have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 85 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at <http://www.ornl.gov/orise/resgd/htm> or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs, as well as services to chief research officers.

For more information about ORAU and its programs, contact Dr. Peter K. Bridson, ORAU Councilor for the University of Memphis, at 901-678-2590; Monnie E. Champion, ORAU Corporate Secretary, at 865-576-3306; or the ORAU Home Page at <http://www.ornl.gov>

Extended Programs

With centers in Jackson, Millington, and Collierville, and additional classes offered in Germantown, Cordova, Whitehaven, Dyersburg, and other sites throughout the Mid-South, the University of Memphis has a convenient location near everyone. Also, with an expanding number of on-line and video courses, students can now attend class without setting foot in a classroom. Students can earn a Master's of Journalism entirely on-line.

Through the Jackson Center, located on the Jackson State Community College campus, students can complete certain degree programs by attending part-time at night and on weekends.

For more information, please contact Extended Programs at 901-678-2991 or visit their website at: <http://www.extended.memphis.edu/>

Cecil C. Humphreys School of Law

The Cecil C. Humphreys School of Law offers a program of instruction leading to the degree of Juris Doctor.

Admission to the Cecil C. Humphreys School of Law is on a selective basis. To be eligible for admission, a student must have received a bachelor's degree from an accredited college or university and must have made a satisfactory score on the Law School Admission Test. Questions concerning additional admissions requirements should be addressed to the Assistant Dean for Admissions, Recruitment, and Scholarships at uofmlaw@profnet.law.memphis.edu.

The regulations and policies of the School of Law are set out in greater detail in the *Law School Bulletin*, a separate publication of *The University of Memphis Bulletin*.



2. Admissions and Academic Regulations

ADMISSION REGULATIONS

Introduction

The Graduate School is open to anyone holding a bachelor's or master's degree from an accredited college or university. Applicants should have completed undergraduate or graduate work of sufficient quality and scope to enable them to successfully pursue graduate study. The University of Memphis offers equal educational opportunity to all persons, without regard to race, religion, sex, age, creed, color, national origin, or physical handicap.

Applicants will be required to meet admissions criteria established by the Graduate School in order to enroll in graduate courses. In order to be admitted to a degree program in any academic unit, applicants will be required to meet any additional standards set by the unit or college. Applicants will be selected on a competitive basis and, therefore, admission will not be granted to all applicants who meet only the minimum requirements. Some academic units may have additional requirements such as portfolios, proficiency examinations, auditions, etc.

Individual program requirements described in *The University of Memphis Graduate Bulletin*, 2001-2003, are subject to change. Please contact the academic unit or the Graduate School for changes that may occur before publication of the next issue of this *Bulletin*; or consult the on-line *Graduate Bulletin*, which is linked to the Graduate School homepage (www.memphis.edu/gradschool). The on-line bulletin is updated annually. Applications are available for on-line submission at www.embark.com. They are also available from the academic units. Please visit the Graduate School homepage for program addresses, deadlines, and additional information. Deadlines and requirements may be different for each program.

Prospective students should check with the appropriate program for specific deadlines and admissions requirements. For admission to a degree program, applicants should allow a reasonable amount of time to elapse for the necessary documents to be processed by the appropriate degree program and the graduate school (approximately three to six weeks from date of receipt of complete application). International applicants should allow at least four months for the application process. Applicants are urged to apply early to ensure full consideration. Late applicants may be admitted as graduate non-degree students and as such are not guaranteed placement in specific classes.

All applications must be accompanied by a non-refundable application fee (\$25.00 for domestic applicants; \$50.00 for international applicants), unless previously paid.

The University of Memphis requires all applicants born after January 1957 to have had the measles (MMR) vaccination after January 1, 1980, in order to be admitted. See "Miscellaneous Information" for additional information.

Return completed applications and required credentials to Graduate Admissions, 216 Administration Bldg., The University of Memphis, Memphis, Tennessee 38152-3370.

See "Admission of International Students" on p. 14 for details about additional requirements for international applicants.

All credentials become the property of the University and will not be forwarded or returned. Credentials will be main-

tained in active files for 12 months, after which they will be destroyed. Candidates must reapply for admission if they wish to be admitted to the Graduate School. The applicant is advised to have all credentials on file well in advance (preferably six weeks) of the beginning of the term for which application is made.

Admission to Master's Degree Programs

The following Graduate School admissions requirements are minimum standards that identify the pool of master's level applicants from which each academic unit makes its selection. International applicants should consult "Admission of International Students" on p. 14 for further requirements.

1. *Baccalaureate Degree*: The applicant must provide an official transcript showing that a bachelor's degree was awarded by an accredited college or university. The applicant must have earned an acceptable grade point average. In addition, transcripts from any other college or university attended may be requested. (Students who received bachelor's degrees from The University of Memphis may disregard this requirement.) Only transcripts received directly from an issuing institution are considered official. For domestic students, signed and sealed transcripts that have been in the applicant's possession can be used for admission purposes; however, official transcripts may later be requested. Personal copies are not acceptable as official documents.
2. *Entrance Examinations*: New applicants to the Graduate School (except to the MALS program) must have taken an appropriate entrance examination within five years of the application date. Contact the appropriate program for information on which test(s) and what score(s) are acceptable. Scores on MAT exams written in less than 2 month intervals are not acceptable. Test scores must be sent directly to Graduate Admissions from the testing agency. The University of Memphis institution code number for reporting ETS scores is R-1459. See program descriptions for more information on requirements.

Students who apply for admission to a master's degree program may have the entrance examination waived if (1) the applicant has an earned master's or equivalent degree from an accredited institution, and (2) the program coordinator concurs.
3. *Program Requirements*: Many academic units have separate departmental applications and/or additional requirements for admission. See program descriptions for more information on requirements.

Admission to Education Specialist (Ed.S.) Program

The Education Specialist degree is designed for the educator-practitioner who desires post-master's training but who does not wish to earn a doctorate. This program is administered by the College of Education; please refer to the appropriate section of this *Bulletin* for a more complete description or contact the dean's office in the College of Education for additional details.

Admission to Doctoral Degree Programs

The following Graduate School admissions requirements are minimum standards that identify the pool of doctoral level applicants from which each academic unit makes its selection. International applicants should consult "Admission of International Students" below for further requirements.

1. *A Baccalaureate or Master's Degree as specified by the program:* The applicant must provide an official transcript showing an earned bachelor's or master's degree, depending on program requirements. The degree must have been awarded by an accredited college or university. Only transcripts received directly from an issuing institution are considered official. For domestic students, signed and sealed transcripts that have been in the applicant's possession can be used for admission purposes; however, official transcripts may later be requested. Personal copies are not acceptable as official documents.
2. *Entrance Examinations:* New applications to the Graduate School require submission of an appropriate entrance examination test score that is not more than five years old. Contact your program for information on which test(s) and what score(s) are acceptable. Test scores must be sent directly to Graduate Admissions by the testing agency. The University of Memphis institution code number for reporting ETS scores is R-1459.
3. *Program Requirements:* Some academic units may have separate departmental applications and/or additional requirements, such as portfolios, proficiency examinations, auditions, etc. Refer to the appropriate program description in this *Bulletin* for details.

Conditional Admission

Upon the recommendation of the appropriate graduate program coordinator, domestic applicants for a graduate degree whose applications are incomplete may be granted conditional admission status for one semester. Such applicants must have either an acceptable GPA or an acceptable admissions test score. Students admitted conditionally must furnish an official transcript or an official admissions test score that meets the program's standards by the end of the student's first semester. Students with conditional status may enroll for only one semester for a maximum of twelve (12) credit hours of graduate course work. After all admission standards have been met, the conditional student must submit a "change of status" form to be fully admitted to a graduate program. Conditional status does not ensure acceptance into a graduate degree program nor are conditional students eligible for graduate assistantships. Some academic units and colleges do not admit students on a conditional basis. International students are not eligible for conditional admission.

Readmission

Once accepted into a degree program, a student is expected to enroll every semester thereafter (excluding summer sessions) and make satisfactory progress toward the degree. A student who does not enroll for one semester must apply for readmission. Submission of an application for readmission does not ensure acceptance. An application for readmission may be rejected or additional requirements may be imposed on the student. A readmitted student must follow the rules, prerequisites, and degree requirements listed in the most current *Graduate Bulletin*. Students writing a thesis or dissertation or engaged in a culminating project must enroll on a continuous basis (fall and spring) until the thesis, dissertation, or project is complete.

Admission of International Students

The University of Memphis believes that the presence of international students on campus enriches the educational environment for all. The University is authorized under Federal law to enroll non-immigrant alien students on the "F-1" student visa.

Prospective students should check with the appropriate program for specific deadlines. International applicants should file complete credentials at least four months before the beginning of the semester for which enrollment is sought. Applicants are urged to apply early to ensure full consideration.

Complete credentials include all the documents listed above under "Admission Requirements" as well as those listed below under "Additional Requirements."

The application should be completed and returned to Graduate Admissions, 216 Administration Bldg., The University of Memphis, Memphis, Tennessee, 38152-3370.

A non-refundable application and processing fee of fifty dollars US (US \$50.00) is required of every international applicant, unless previously paid. A check drawn on a US bank or a money order, made payable to The University of Memphis, must be sent with the application. Applications received without the application fee will not be processed.

Applications are also available for on-line submissions at www.embark.com. Payment of the application fee is by credit card.

Applicants will be selected on a competitive basis and, therefore, admission will not be granted to all applicants who meet only the minimum requirements. Some academic units may have additional requirements such as portfolios, proficiency examinations, auditions, etc.

All transcripts, test scores, and other credentials must be accompanied by an official English translation of these documents and must be on file in Graduate Admissions at least four (4) months before the desired enrollment date.

Additional Requirements

In addition to admissions requirements described above, international students must supply the following:

1. *TOEFL Scores:* All applicants who will be attending the University on a visa and who are not graduates of The University of Memphis must supply a minimum score of 550 on the paper or 210 on the computer-based Test of English as a Foreign Language (TOEFL). Some units, however, require a higher TOEFL score; check program descriptions for specific requirements. Testing locations and other information can be obtained from www.toefl.org or by writing to TOEFL, Educational Testing Service, Princeton, New Jersey, 08540, U.S.A. All test scores must be sent directly from the testing agency to The University of Memphis, institution code R-1459.
2. *Required Evaluation of Credentials:* Applicants whose highest degree is from a foreign university must have their credentials evaluated by World Education Services (<http://wes.org>). Their mailing address is World Education Services; P. O. Box 745; Old Chelsea Station; New York, NY 10113-0745. In most cases, the document-to-document report is sufficient.
3. *Affidavit of Support and Financial Statement:* An applicant who holds or will require an "F-1" student visa must supply, on the form provided by the University, sufficient evidence of financial support for the applicant and all members of his/her family who will accompany the applicant to Memphis. This requires that the applicant certify that his/her intent is to attend the University full-time and that no employment, other than assistantships, will be required.

4. *Health Certificate:* Within 30 days from the first day of classes, each international student must submit a certificate from a licensed U.S. physician or other qualified U.S. medical authority verifying freedom from tuberculosis. Failure to do so shall result in denial of enrollment. In the event that a student either has tuberculosis or has potential tuberculosis requiring medical treatment, continued enrollment will be conditional upon the determination by a licensed U.S. physician that such enrollment does not present a risk to others and upon the student's compliance with any medical treatment program.
5. *Health Insurance:* All international students must purchase health insurance before they are allowed to enroll.
6. *Readmission:* International students who wish to apply for readmission to the University must meet the deadlines stated above.

Admission to Non-Degree Status

Combination Senior

An undergraduate senior student at The University of Memphis may earn up to 12 hours of graduate credit while enrolled on a Combination Senior/Graduate Non-Degree basis. The student must have a total cumulative GPA of at least 3.25 and must have filed with his or her graduation analyst a plan for completing the bachelor's degree within two semesters. Eligible students may enroll concurrently in undergraduate and select graduate courses. Approval to register for graduate credit does not imply approval for admission into a graduate program at the University or that the credit earned will be accepted towards a graduate degree. After the bachelor's degree is awarded, a Combination Senior/Graduate Non-Degree student must make formal application in order to be admitted to a graduate degree program. Courses taken for graduate credit may not be used for both the baccalaureate and graduate degree. Combination seniors are not eligible for graduate assistantships.

Graduate Non-Degree

The Graduate Non-Degree classification is for students who wish to enroll in graduate courses but who do not wish to pursue a graduate degree at the University. Graduate non-degree applicants must show proof of having earned a baccalaureate degree at the time of application. At the end of the first semester of course work, the Graduate Non-Degree student may be required to furnish an official transcript showing at minimum a bachelor's degree from an accredited college or university.

Academic units may restrict non-degree students to designated courses. Graduate Non-Degree students who decide to matriculate for a degree must make application to The Graduate School and must meet all admissions requirements. **Master's students in programs requiring 36 credit hours or fewer are limited to 12 credit hours while in non-degree status. Students in doctoral programs or other degree programs requiring more than 36 hours, must take at least 2/3 of the credit hours after acceptance into the program.** Students should note that some academic units count coursework toward a degree only after admission or have more restrictive policies regarding the number of non-degree hours that count toward the degree.

Before registering for a second semester of graduate level coursework, the non-degree student is required to sign a release agreeing that additional coursework will not apply to degree programs.

Non-degree students must maintain a 3.00 GPA in graduate courses in order to re-enroll and are not eligible for graduate assistantships.

MISCELLANEOUS INFORMATION

Measles Vaccination

The University of Memphis requires all students born after January 1957 to have had the measles (MMR) vaccination after January 1, 1980, in order to register. The vaccination is available at Health Services for a nominal fee.

Health Services

Limited medical services are available in the University Health Center upon presentation of a valid student identification card. Outpatient medical services, including general clinical evaluation, diagnosis, and treatment; laboratory and X-ray; family planning; and a dispensary are available. Students are charged only for lab tests sent off-campus to a reference lab, for medicines (over-the-counter or prescribed by the center) purchased at the dispensary, and for family planning.

Entrance Examination Information

The GRE, GMAT, PRAXIS I (PPST), and TOEFL can be taken on campus by computer. Call The University of Memphis Computer Testing Center at 901-678-1457 to make an appointment.

Graduate Record Examination (GRE)—Registration packets for the GRE may be obtained from Graduate Admissions (AD 216), the Graduate School office (AD308), and the Testing Center (HC 111).

Graduate Management Admissions Test (GMAT)—Registration packets for the GMAT are available in Graduate Admissions (AD216), the Graduate Studies Office of the Fogelman College of Business and Economics (BA101), and the Testing Center (HC111).

Miller Analogies Test (MAT)—Students who wish to arrange for the MAT should contact the Testing Center, Health Center, Rm. 111, The University of Memphis.

Residency Classification

Determinations concerning the classification of graduate students as in-state or out-of-state for fee purposes are made in the Graduate School. The determinations are based on the regulations and guidelines of the Tennessee Board of Regents. See Section 3, "Expenses," for further information. The residency guidelines differ from and are independent of guidelines used to determine residency for other purposes, such as tax liability, driver's licenses, voting, etc. If, for any reason, there is a question about a student's residency classification for fee paying purposes, it is his or her responsibility to check with the Graduate School in AD308. Application for reclassification must be made to the classification officer on or before the last day of regular registration of that quarter or semester.

Veterans Services

The Office of Veterans Services, as a component of the Office of the Registrar, provides assistance to eligible veterans and dependents who enroll at The University of Memphis. The office also provides information about a variety of programs and services including Programs of Education and Training, VA Tutorial Services, VA Work Study positions, or VA Educational Loans, as well as counseling and referral for personal, family, career, financial, and educational problems.

Veterans and dependents receiving benefits should be aware that benefits will be terminated for graduate students after two consecutive semesters on academic probation, unless the University approves an academic probation continuation (see "Academic Probation" below).

VA benefits and Title IV funds for enrollment fees are subject to cancellation and immediate repayment if the recipient stops attending, whether or not he/she has withdrawn or dropped a course. The instructor will report the last known date of attendance as the student's "unofficial withdrawal date." Students who stop attending will be assigned a grade of "F" in courses that do not reflect an official withdrawal.

Although advisors are provided for veterans, this assistance does not relieve students of the responsibility for fulfilling all VA and University requirements.

ROTC Programs

Graduate students are eligible to earn a commission as a second lieutenant in the U.S. Air Force by completing 12 semester hours of the AFROTC advanced program in conjunction with their graduate school studies. Applications are accepted during January and February for Fall semester entries.

Graduate students are also eligible to earn a commission as a second lieutenant in the U.S. Army by completing 16 semester hours of the ROTC advanced program in conjunction with their graduate school studies.

ACADEMIC REGULATIONS

Graduate and prospective graduate students are responsible for being thoroughly familiar with the rules, regulations, and degree requirements of the Graduate School and of the academic units.

Course Numbering System

Only non-degree, conditional, and fully admitted graduate students may enroll in and receive graduate credit for courses numbered according to the following system:

- 6000-6999— Courses equivalent to 4000 level senior courses for which a limited amount of graduate credit may be earned. Students will be expected to do more work and/or to perform at a higher level to receive graduate credit. Students may not receive credit for a 6000 level course if they have credit at the 4000 level.
- 7000-7999— Courses open primarily to master's students
- 8000-8999— Courses open primarily to post-master's students
- 9000— Dissertation

Course Load Limitations

Fifteen semester hours of coursework shall be the maximum load for students devoting full time to graduate study during regular sessions. The maximum total number of hours of graduate course work for which a graduate student may enroll during the Summer Session is 12.

Those who register for 9 or more hours in the academic year will be considered full-time students. University-funded graduate assistants must register for no fewer than 12 semester hours (or 6 thesis/dissertation hours) in both the fall and spring terms.

Requests for overloads must be approved by the director of graduate studies in the student's college or school.

Change of Major

Students who have previously declared a major but desire to make a change should apply to Graduate Admissions in AD216 to begin the process by completing a Change of Status form (also available on-line at the Graduate School's homepage). A change of major is considered the equivalent of reapplying for admission. All admission requirements of the new major must be satisfied before a change can be granted.

Adding and Dropping Courses

Courses may be added or dropped after registration for a limited time only. Refer to the University Calendar in the Schedule of Classes for specified dates. Courses may be added late only upon approval of the instructor and the director of graduate studies in the student's college.

Audit Courses

Students who are admitted to The University of Memphis may register to audit a course with the prior approval of the instructor and the head of the academic unit or designate. Students enrolling on an audit basis do not receive academic credit for that course. Particularly in high-demand courses, academic units should make sure that students who need these courses for degree credit can be accommodated before they issue permits for audits. Audits should not be used simply as a vehicle for obtaining access to laboratory or studio facilities.

Auditors are not required to take examinations and do not receive a regular letter grade. The student and the instructor should reach a precise agreement as to the extent and nature of the student's participation in the course, including class discussion, projects, and readings. Students auditing a course will receive "audit" on the transcript only if they have attended regularly and participated according to the prior agreement with the instructor.

A student may not change from a grade point basis to audit or from audit to a grade point basis after the last day to add classes for that session. Any questions concerning this policy should be referred to the colleges.

Fees for audits will be assessed on the same basis as fees for credit courses.

Withdrawal from Graduate School

A graduate student may withdraw from the University or drop a course after the drop date only when circumstances beyond the student's control make it impossible to complete the semester. Late withdrawals and late drops must be approved by the director of graduate studies in the student's college. Students enrolled on a non-degree basis must obtain the approval of the Dean of the Graduate School or designee.

Attendance

Requirements for attendance in any graduate course will be determined by the instructor, and must be communicated in writing to students in the first class meeting.

Grading System

Grades

The table below shows the grades that may be awarded with their quality points:

Grade	Quality Points	Grade	Quality Points
A+	4.00	C+	2.33
A	4.00	C	2.00
A-	3.84	C-	1.67
B+	3.33	D+	1.33
B	3.00	D	1.00
B-	2.67	F	0.00

Grades used to postpone or suspend course completion include "I" (incomplete), "IP" (in progress), and "W" (withdrawn).

The grades for student teaching, workshops, practica, internships, theses, and dissertations (designated in the listing of courses with †) are "S" (satisfactory), "U" (unsatisfactory), or "IP" (in progress). Such grades do not carry any quality points and are not included in computing GPA.

Incomplete: The grade "I" (incomplete) may be assigned by the instructor in any course in which the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 90 days from the end of the semester or summer term in which it was received (see University Calendar), the "I" will change to an "F," regardless of whether or not the student is enrolled. The instructor may grant a 45-day extension if sufficient extenuating circumstances exist. At the end of the 45-day extension period, the "I" grade will automatically revert to an "F" if the student has not completed the requirements. The student will be certified for graduation only when all requirements are met, including the removal of all "I" grades. For students who have an "I" in the semester in which they expect to graduate, the certification process and graduation will automatically be deferred to the next term.

In Progress: Instructors of research courses may record "IP" for "work in progress" to extend the time required for the completion of such research. A final grade of "S" or "U" is filed upon completion of the project.

Grade Point Average: The Grade Point Average (GPA) for graduate students is computed on ALL graduate courses completed within the specified time period for the degree. Graduate students must maintain a 3.0 GPA ("B"). Grades of "D" and "F" will not apply toward any graduate degree, but will be computed in the GPA. No more than 7 hours of "C-," "C" or "C+" will be applied towards meeting degree requirements. Grades earned at another university will not be computed in the cumulative GPA. Grades in courses that are older than the time limitation for degree will be shown on the transcript but will not be included in the computation of the GPA used for graduation. Only courses that have been validated will count toward the degree (see below for validation policy).

Repetition of Courses: A graduate student may repeat a course to earn a higher grade only if the earned grade was lower than a "B" (3.0). No course may be taken more than twice to improve the grade. Only the grade earned in the second attempt will be included in the computation of the cumulative grade point average. A maximum of two courses may be repeated to improve a grade. Students should always check with their advisors before enrolling in a course a second time.

Grade Changes: Grades properly issued in a course by the faculty member of record will not be altered except when an error was made in computation or reporting or as a result of a formal grade appeal.

Credit by Examination

In cases where the student has knowledge, but has not taken the appropriate course, the academic units, with approval from the Dean of the Graduate School or designee, may offer graduate courses for credit by examination. Total credit-by-examination applied to a student's degree program may not exceed six (6) semester hours.

The following regulations govern the granting of credit by examination:

1. A student enrolled in a degree program (full-time or part-time) who is in good academic standing may make application to take an examination for credit.
2. Permission to take credit by examination must be obtained from the major advisor, unit head, and the director of graduate studies in the student's college. When permission is granted, and after payment is made for the cost of the examination, the director of graduate studies (or designee) in the student's college will issue the official permit for the examination. When the unit head returns the completed form to the Graduate School, the Dean or designee will authorize the posting of the credit to the student's record.
3. The form of the examination, the method of administering it, and the time of examination are left to the discretion of colleges and academic units.
4. To receive credit, the student's examination grade should be equivalent to at least a "B" (3.0). Credit is indicated on the student's record as "S" but is not figured in the GPA.

Course Validation

The University sets time limits on students to ensure that they have reasonably current knowledge in those courses that comprise the graduate program and for which a graduate degree is awarded. When coursework taken at The University of Memphis is too old to be included in a graduate program, the academic unit may allow the student access to validation procedures subject to the following regulations:

1. Only students fully admitted to graduate programs and who are in good standing are eligible.
2. Not more than 12 hours of the total credits in a master's program may be validated. Not more than one-third of the total credits in a doctoral program may be validated.
3. Only courses with fixed content are eligible for validation. (Independent study, research, special topics courses, and workshops are ineligible.)
4. Only those courses still being taught are eligible for validation.
5. To receive credit, the student's validation grade should be equivalent to at least a "B" (3.0). Credit is indicated on the student's record as "S" but is not figured in the GPA.

For additional information about course validation procedures, contact the Graduate Analyst in AD 309 or the Graduate School Office in AD308.

Transfer Credit

Credit towards a graduate degree does not transfer automatically. In general, however, graduate work completed at another institution in a program accredited at the graduate level may be accepted in a graduate degree program at the University, with the following provisions. (1) These courses have not been used to earn a previous degree. (2) They relate to the content of the graduate program and/or are comparable to those offered at the University. (3) They do not exceed time limitations set for master's and doctoral programs.

Credit previously earned at another institution must be presented for evaluation not later than the end of the student's second semester of enrollment. Forms are available on-line or in the Graduate School Office (AD308). Only transcripts received directly from an issuing institution are considered official.

Approved transfer credit may be accepted for not more than 12 semester hours of course credit toward a master's or Ed.S. degree. **Individual academic units may set more stringent limitations.** Credit will be transferred to apply toward a doctoral program upon approval of the student's advisory committee; however, the last thirty semester hours of credit for the doctoral degree must be earned at The University of Memphis.

Courses proposed for transfer credit must meet the following two requirements. (1) The Tennessee Board of Regents requires a minimum of 750 contact minutes for each semester credit (2250 for a 3-hour course). (2) The Tennessee Conference of Graduate Schools requires a minimum of 3 hours of classwork per week for 3 hours of credit.

Grades earned at another institution will not be computed in the University cumulative grade point average, nor will they be accepted for transfer, unless they are "B" (3.0) or better. No credit will be transferred unless it meets with the approval of the major advisor or unit graduate coordinator.

Academic Misconduct

Graduate students at The University of Memphis are expected to observe the regulations and policies that govern the behavior of students as members of this academic community. These regulations and policies are published in the Student Handbook, available on-line at www.memphis.edu/stuhand2. In particular, graduate students should become familiar with the University's policies on plagiarism in its various forms. Furthermore, term papers may not be used to meet the requirements of more than one course unless approved in advance by both instructors.

The Academic Discipline Committee, a standing University committee appointed by the President, addresses allegations of academic misconduct.

Academic Probation

A graduate student whose cumulative grade point average drops below 3.00 will be placed on probation. A second consecutive semester on probation can result in suspension. Conditions under which continuation in the graduate school beyond two consecutive semesters on probation will be granted must be recommended by the academic unit and approved by the director of graduate studies in the student's college and the Dean of the Graduate School. If, in the opinion of the director of graduate studies, the academic unit, and the Graduate School, the student is not making satisfactory progress toward degree completion, the student will be dismissed from the degree program.

Graduate Faculty

The University of Memphis maintains five levels of graduate faculty: full, associate, affiliate, adjunct, and teaching adjunct. Only full graduate faculty members may chair doctoral committees. Full or associate graduate faculty may chair master's committees. Full members of the Graduate Faculty may direct dissertations and associate members may direct theses in an academic unit other than their own at the discretion of the graduate coordinator and/or the chair of that unit.

Affiliate or adjunct graduate faculty may be members of doctoral and master's committees in their areas of expertise, but may not chair them. No more than one adjunct or affiliate graduate faculty member may serve as a voting member of a student's committee. Teaching adjuncts may not serve on graduate committees.

Additional information pertaining to application for graduate faculty status, including the *Guidelines and Procedures for Graduate Faculty Status*, is available on-line or can be obtained from the Graduate School or from the graduate directors of the colleges and schools.

Privacy Rights of Parents and Students

The University complies fully with the Family Educational Rights and Privacy Act (FERPA) of 1974. This act is designed to protect the privacy of educational records, to establish the right of students to inspect and review their educational records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the FERPA Office concerning alleged failures by the institution to comply with the Act.

The provisions for the release of information about students and the rights of students and others to have access to The University of Memphis education records are published each semester in the *Schedule of Classes*. A copy of the Act and The University of Memphis Procedure may be reviewed in the offices of the Registrar or University Counsel.

Appeals Procedures

Any student has the right to appeal decisions made by University officials in the implementation of University policy. If a student feels that individual circumstances warrant an appeal, the request for appeal must be filed in the University office responsible for the administration of that policy or the office specified in the policy statement.

NOTES: 1) "Class days" excludes Saturday, Sunday, and holidays. 2) The summer sessions are considered as one term for grade appeal purposes; i.e., the period for appealing is 30 class days from the end of the last summer term.

Grade Appeals

This appeal procedure provides any graduate student at The University of Memphis with a clearly defined avenue for appealing the assignment of a course grade that the student believes was based on prejudice, discrimination, arbitrary or capricious action, or some other reason not related to academic performance. **In all cases the complaining student shall have the burden of proof with respect to the allegations in the complaint and in the request for a hearing.**

The student must institute the appeal process within thirty (30) class days following the semester in which the contested grade was received. If the instructor, chair, or dean fails to respond to the student's complaint within the time limits, the Graduate Grade Appeals Committee shall act on the student's complaint. The procedure is terminated if the student and the instructor agree on the grade. If the student fails to appeal a decision within the appropriate time limit, the disposition of the student's complaint made in the previous step shall be final.

A written record of all decisions shall be kept with the file at all steps in the process. Copies of all correspondence and records shall be retained in the office in which the complaint is

finally resolved. The original documents shall be forwarded to the Graduate School Office for filing.

All parties must carefully adhere to the following procedure, observing the deadlines.

Step 1

Time Limitation: Early enough to meet the deadline in Step 2.

The student shall first consult with the instructor in an effort to provide a satisfactory resolution of the complaint. In the event the student cannot schedule a meeting with the instructor, the student may contact the department chair, who shall schedule the meeting between the student and the instructor. If for any reason the instructor is not available, proceed to Step 2. If agreement is reached between the student and instructor, the appeal process ends.

Step 2

Time Limitation: Thirty (30) class days from the end of the term in which the contested grade was received.

If the complaint is not resolved in Step 1, the student must complete a Graduate Grade Appeal Form (available in PDF format on the Graduate School's homepage, in the departmental office, or in the Graduate School Office, AD308). This form, accompanied by a written statement detailing the factual basis of the complaint along with the instructor's written rebuttal, shall be taken by the student to the chair of the department in which the course was taken. The written complaint must be received by the chair within thirty (30) class days from the end of the term in which the contested grade was received. The department chair shall then address the complaint in consultation with the instructor and the student within fifteen (15) class days of the date of submission of the written complaint. If the instructor is unavailable, the chair should proceed with the appeal. The department chair may utilize any resources available to resolve the grade conflict. The chair must provide a written rationale for any decision made, which shall become part of the file.

If the department chair was the instructor of the course involved in the complaint, or if for any reason the chair disqualifies him/herself, the student may proceed to Step 3.

The chair is empowered to change the grade if he/she finds that the original grade was based on prejudice, discrimination, arbitrary or capricious action, or some other reasons not related to academic performance.

Step 3

Time limitation: Within five (5) class days after the fifteen class-day period above.

If the complaint cannot be resolved at the level of Step 2 within the prescribed fifteen (15) class days, the student has five (5) class days to request in writing (with a copy to the Graduate School) that the chair forward the complaint to the dean of the college. The chair shall provide the dean with the Graduate Grade Appeal Form, the chair's written rebuttal, a copy of all correspondence and decisions, along with other records pertaining to the complaint.

The dean may utilize any resources available to resolve the grade conflict within fifteen (15) class days. If the dean finds that the request lacks merit, he or she shall notify the student, the instructor, and the chair in writing; the grade shall remain as recorded. The dean is empowered to change the grade if he/she finds that the original grade was based on prejudice, discrimination, arbitrary or capricious action, or some other reasons not related to academic performance. Otherwise the grade shall remain as recorded. The dean must provide a written rationale for any decision made, which shall become part of the file.

Either the student or the instructor may appeal the dean's decision within five (5) class days by filing a written request for a hearing before the Graduate Grade Appeals Committee with the Dean of the Graduate School or designee. This request must be accompanied by the Graduate Grade Appeal Form, a copy of all correspondence, including the dean's written recommendation, and other records pertaining to the complaint.

Step 4

Time limitation: Within five (5) class days after the fifteen (15) class-day period above.

The written request for a hearing before the Graduate Grade Appeals Committee should state the factual basis for the appeal of the results of Step 3. All supporting documents, including the Graduate Grade Appeal Form, should be included at the time of submission.

The Dean of the Graduate School shall forward the request to the chair of the Graduate Grade Appeals Committee. The chair shall subsequently distribute copies of the request to the members of the committee for consideration. If the Committee finds the student's or the instructor's request merits a hearing, the Committee shall notify the student, the instructor, the chair, and the college dean of the date, time, and the location of the hearing. If the Committee finds that the request does not merit a hearing, the student, the instructor, the chair, and the dean shall be so notified in writing.

The Graduate Grade Appeals Committee may utilize any available resources to resolve the conflict within fifteen (15) class days. To hold a hearing, the seven (7) members of the committee (or appropriate alternates) must be present. The instructor and student will present their cases at the hearing in each other's presence. If a majority of the Committee agrees that the grade should be changed because it was based on prejudice, discrimination, arbitrary or capricious action, or some other reason not related to academic performance, the Committee shall notify the Dean of the Graduate School, who shall be empowered to change the grade without the consent of the instructor, the chair, or the college dean. Otherwise, the grade shall remain as recorded. The decision of the Committee shall be communicated to all parties in writing. **The decision of the Graduate Grade Appeals Committee shall be final.**

The Graduate Grade Appeals Committee shall be composed of seven members and seven alternates constituted as follows:

A chair designated by the Dean of the Graduate School and selected from the graduate faculty; a graduate faculty member and alternate designated by the Dean of the Graduate School; two graduate faculty members and two alternates elected by the University Council for Graduate Studies and Research; three students and three alternates selected by the Dean of the Graduate School.

The appeals procedure is not complete until all appropriate records are forwarded to the Graduate School Office. At this time, the Dean of the Graduate School shall notify the Office of the Registrar, Corrections, of any grade change. A copy of the Graduate Grade Appeals Form shall become a part of the student's file. A permanent record of all grade appeals reviewed by the Grade Appeals Committee shall be maintained in the Office of the Graduate School.

Although the primary responsibility of the committee is to review appeals, the committee shall report any obvious discriminatory or capricious conduct on the part of either the student or the instructor to the Dean of the Graduate School for consideration and action.

Retention Appeals

Any action that results in a student being terminated may be appealed under the following procedures. These actions may include a second failure on comprehensive examinations, failure on a thesis or dissertation oral, a second semester on academic probation, or an action of a program retention committee. Appeals are to be presented and hearings on appeals convened only during periods in which the academic units of the University are in session. All parties concerned must receive copies of:

1. The requests for a hearing,
2. Notices of the time and location of the hearing, and
3. Disposition of the hearing request in each step of the appeal procedure.

As soon as notice is received that the appeal is continuing, copies of all correspondence and other records pertaining to the complaint must be forwarded to all concerned.

Step 1

A. Time Limitation: Thirty class days following the semester in which the termination was received.

The student must submit a written request to the department chair for a hearing to appeal termination from the program. The request should state the factual basis for the appeal.

B. Time Limitation: Fifteen (15) class days following receipt of the complaint.

In consultation with the student and appropriate departmental committee, the department chair will render a decision on the appeal. The student and departmental committee will be notified in writing of the department chair's decision and reasons supporting the decision.

Step 2*

A. Time Limitation: Five (5) class days following the announcement of the decision by the chair.

The student or the departmental committee may appeal the decision made in Step 1 by filing, with the director of graduate studies in the student's college, a written request for a hearing before the college council for graduate studies. The request should state the factual basis for the appeal of the chair's decision and include a copy of the chair's decision.

B. Time Limitation: Fifteen (15) class days following the receipt of the written request.

The college council for graduate studies will notify the student, departmental committee, and chair of the date, time, and location of the retention appeals hearing. If the college council agrees that the student should be reinstated, the council shall be empowered to reinstate the student. The student, departmental committee, and chair will be notified in writing of the college council's decision and reasons supporting the decision.

[*In the case of departments that are not represented on a college council, Step 2 will be omitted and the appeal will be forwarded to the dean of the unit involved.]

Step 3

A. Time Limitation: Five (5) class days after the announcement of the decision by the college council.

If the complaint cannot be resolved at the level of Step 2, the student or the departmental committee may request in writing that the director of graduate studies in the student's college forward the complaint to the dean of the appropriate college with a copy of the college council's decision.

B. Time Limitation: Fifteen (15) class days following the written request for appeal.

The college dean may utilize any resources available to resolve the conflict. The chair, the director of graduate studies in the student's college, the departmental committee, and the student will be notified in writing of the dean's decision.

Step 4

A. Time Limitation: Five (5) class days following the announcement of a decision by the college dean.

If the complaint cannot be resolved at the level of Step 3, the student or the departmental committee may appeal the decision by filing, with the Dean of the Graduate School, a request for a hearing before the University Council for Graduate Studies and Research. The written request for a hearing must state the factual basis for the appeal and include a copy of the dean's decision.

If the University Council for Graduate Studies and Research finds that the appeal does not merit a hearing, all concerned parties shall be notified by the graduate dean.

B. Time Limitation: Fifteen (15) class days following the receipt of the written appeal.

If the University Council for Graduate Studies and Research finds that the appeal merits a hearing, it will notify the college dean, the director of graduate studies in the student's college, the department chair, the departmental committee, and the student of the date, time, and location of the retention appeals hearing. Any available resources may be used by the University Council to resolve the conflict. If the University Council agrees that the student should be reinstated, it shall be empowered to reinstate the student. The Dean of the Graduate School will notify in writing all concerned parties and the student of the decision and reasons supporting the decision.

The decision of the University Council for Graduate Studies and Research shall be final.

Expiration of Bulletin

The degree requirements published in the Graduate Bulletin of The University of Memphis are valid for seven years, beginning with the academic year to which the *Bulletin* applies. A student may complete the degree under the provisions of any valid university *Bulletin*, provided that the effective date of that *Bulletin* is not earlier than the student's initial graduate admission to the university. For students entering in Fall 2001, this two-year issue of the *Bulletin* is valid through Summer 2008; for students entering in Fall 2002, it is valid through Summer 2009.

NOTE: Although the requirements for a degree program may be effective for seven years, there are time limitations relating to the completion of degrees. See Time Limitations sections for graduate degrees in the following sections of this chapter. In addition, the University reserves the right to cancel or alter any part of this Bulletin without notice. The course offerings and academic requirements are continually under review and revision and may be changed or revoked. The specific courses or activities constituting the degree requirements for any program are subject to substitution at any time prior to completion by the student. This Bulletin is not intended to state contractual terms and does not constitute a contract between the student and The University of Memphis. The University of Memphis reserves the right to make changes as required in course offerings, curricula, academic policies, and other rules and regulations affecting students to be effective whenever determined by the University. The changes will govern current and formerly enrolled students. Enrollment of all students is subject to these conditions. Current information on academic regulations and requirements may

be obtained from the Graduate School Office, AD 308. All courses, programs, and activities described in this bulletin are subject to cancellation or termination by The University of Memphis or the Tennessee Board of Regents at any time.

MINIMUM DEGREE REQUIREMENTS

Graduate Academic Programs

Graduate students are expected to be aware of and to comply with the general requirements for the degrees they are pursuing as outlined in the Graduate School Bulletin. In addition to the general requirements, students are expected to conform to any additional requirements set by the student's college or academic unit.

A wide variety of graduate programs of study are offered in The Graduate School at The University of Memphis. Candidates for a degree must design a plan in consultation with their major advisor and then obtain the appropriate approvals.

The University of Memphis offers Master's degrees, Education Specialist degree, and Doctoral degrees. The Master's programs are: Master of Arts (MA), Master of Science (MS), Master of Arts in Liberal Studies (MALS), Master of Arts in Teaching (MAT), Master of Business Administration (MBA), Master of City and Regional Planning (MCRP), Master of Fine Arts (MFA), Master of Health Administration (MHA), Master of Public Administration (MPA), and Master of Music (MMu). In addition, the degrees of Education Specialist (EdS), Doctor of Audiology (AuD), Doctor of Education (EdD), and Doctor of Musical Arts (DMA) are offered. The Doctor of Philosophy (PhD) is awarded in audiology and speech pathology, biology, business administration, chemistry, communication arts, counseling psychology, educational psychology and research, earth sciences, engineering, English, history, mathematics, music, philosophy, and psychology.

Foreign Language Proficiency

A reading knowledge of at least one foreign language is required in several graduate programs. This requirement may be met in one of the following three ways. (1) The student achieves a score on the Graduate School Foreign Language Test (GSFLT) acceptable to the academic unit granting the degree. (2) The student earns a grade of "B" (3.0) or better in designated courses. (3) The student demonstrates a reading knowledge of a foreign language at a level acceptable to the Coordinator of Graduate Studies and the chair of the Department of Foreign Languages and Literatures. For additional information consult the academic unit directly.

Minimum Requirements for Master's Degree

Course Requirements

The master's degree program shall generally include 30-36 semester hours of course work, although some programs require substantially more. Refer to the appropriate program description for specific requirements. The student's program must be approved by the major academic unit. A student may be required to take courses beyond the minimum to ensure balance and depth in the discipline.

A minimum of 70% of the total required hours must be provided by 7000 level courses. No more than 12 hours of

workshop courses and independent study courses may be applied to a master's degree. Individual academic units may allow fewer hours in their programs.

Additional Program Requirements

Each graduate program listed in this *Bulletin* has minimum degree requirements. In consultation with the faculty, the coordinator of each graduate program may specify any additional requirements, such as prerequisites, a reading knowledge of a foreign language, a working knowledge of statistics, or specific courses related to graduate or teaching assistantships.

Time Limitation

All requirements for the degree must be completed in six years, or eight years in programs that require 36 hours or more. Courses older than these limits will not be allowed as credit toward the master's degree.

There are no exceptions to program time limits. However, students may request the option of validating old courses as described in the Academic Regulations of this Bulletin.

Grades earned in courses that are older than program time limits will be shown on the transcript but will not be included in the computation of the GPA for graduation purposes.

Comprehensive Examination

Before being recommended for graduation, every candidate for the master's degree is required to pass a final comprehensive examination. The comprehensive examination should be administered only to students in good standing during the last term of coursework. The examination may be oral or written or both, at the discretion of the academic unit. The result of the exam must be communicated to the Graduate School on the Comprehensive Examination Results Form.

It is the student's responsibility to confer with the appropriate academic unit regarding the time and place of the examination.

A student who does not perform satisfactorily on the first comprehensive examination will be given an opportunity to take a second examination at the next regularly scheduled examination period. The academic unit may recommend appropriate coursework, which the student will take in preparation for retaking the exam.

Results of comprehensive examinations are not graded as courses are and so are not appealable, nor can they be changed after the form has been filed with the graduate school. Students may take a second examination, however. A second failure results in termination, which is appealable. The retention appeals process is formalized and must be followed in all cases. See the section on Retention Appeals.

Admission to Candidacy

Before an applicant will be officially admitted to candidacy for a master's degree, the student must have satisfied the following requirements:

1. The "Application for Admission to Candidacy for the Master's Degree" and an "Intent to Graduate Card" must be filed by the deadline published in the Graduate Bulletin and in the Schedule of Classes and posted on academic unit bulletin boards on campus. No exceptions will be made if candidacy forms are not submitted by the stated deadlines.

2. If a student is writing a thesis, an approved Thesis/Dissertation Proposal Form must be filed with all necessary human or animal subjects approvals before *any* research is undertaken.
3. The student must have at least a 3.0 average on all coursework listed on the candidacy forms as well as any other graduate work undertaken at The University of Memphis within the specified time limit. Grades of "D" or "F" are not accepted for any graduate degree credit but these grades will be computed in the GPA. No more than seven (7) hours of "C+," "C," or "C-" will be counted toward degree requirements.
4. Grades earned in the final semester may not be used to correct GPA deficiencies. The student must have at least a 3.0 average in all graduate work at the time the Intent to Graduate Card is filed.
5. The program must include a minimum of 70% of the total required hours as 7000 level courses.
6. All requirements of the Graduate School, the student's college, and the academic unit must be met.
7. The student's graduate work up to this point must be acceptable in quality and quantity to the major advisor, unit head and/or director of graduate studies in the student's college, and the Dean of the Graduate School.

It will be the responsibility of each graduate student to notify the Graduation Analyst (AD309) of any changes in name or address. Students who are graduating will receive a letter explaining graduation ceremony requirements about one month prior to graduation.

Thesis Requirements

Most academic units provide students both a thesis and a non-thesis option (see department descriptions). A thesis of 3 to 6 semester hours may be presented as partial completion of degree requirements. Students must enroll for thesis credit each academic semester until the thesis is completed. If a student is writing a thesis, an approved Thesis/Dissertation Proposal Form must be filed with any necessary human or animal subjects approvals before *any* research is undertaken.

Upon completion of the thesis, the student must successfully complete an oral defense administered by the student's advisory committee. *All* committee members must be present at the examination and the results are determined by a unanimous vote of the committee. Only one adjunct or affiliate graduate faculty member may serve as a voting member on a master's committee. (If the oral exam encompasses both the comprehensive and the defense, the results should be reported separately on the forms provided.)

The final draft of the thesis must be approved by all members of the student's committee and the Dean of the Graduate School for final acceptance. A copy of that final draft must be submitted to the Graduate School after the successful defense.

The Graduate School requires three copies of the master's thesis. The student should consult with the unit head and/or thesis advisor as to the number of additional copies required.

Continuous Enrollment

A student must be enrolled for thesis hours in any semester in which he/she is working with the advisor or using university resources. Furthermore, a student must register for thesis credit each Fall and Spring semester until the thesis is complete. Failure to so register will result in the student being charged tuition for each semester he or she did not enroll.

The only exception to this policy is if the student's major professor is on leave or otherwise unavailable. In such cases the approval of the appropriate college director and the Dean of the Graduate School is required. In case of serious medical circumstances, students may request a leave of absence, subject to the approval of the unit graduate coordinator, the college director of graduate studies, and the Dean of the Graduate School. Retroactive approval will not be granted. A leave of absence does not extend time limit to degree.

This policy also applies to the three-hour capstone project (PLAN 7986) required for the Master of City and Regional Planning (MCRP) degree and the culminating experience required for the Education Specialist (EdS) degree.

Thesis Credit

Credit will be posted upon completion and acceptance of the thesis. No more than six (6) hours will be allowed for a master's thesis, even though the student may have been required to register for additional hours in order to maintain continuous enrollment. If a student elects not to complete the thesis, a retroactive drop (or withdrawal) must be processed for the last term of enrollment in thesis credit to reflect the change of program on the student's transcript.

Second Master's Degree

Students who hold a master's degree from The University of Memphis may pursue a second master's degree with a different major or degree if the academic unit accepts them. No more than six (6) semester hours of the first degree may be applied toward the second degree (see exceptions in the MFA in Creative Writing, MFA in Art, MFA in Theatre, and the MCRP). The second academic unit will determine whether any credit from the former degree will be accepted toward the second degree. Any credit accepted toward the second degree must be within the regular time limit requirements for the master's degree. Two degrees may be pursued simultaneously or sequentially.

Education Specialist

The Education Specialist degree is designed for the educator-practitioner who desires post-master's training but who does not wish to earn a doctorate. For additional information, please refer to the College of Education section of this *Bulletin*.

Minimum Requirements for Doctoral Degrees

Course Requirements

Doctoral degrees require at least 72 credit hours beyond the bachelor's degree; many programs require more. Specific requirements for the doctoral degree vary with the academic unit; see the appropriate section in this *Bulletin*. The student's program must be approved by the major academic unit. A student may be required to take courses beyond the minimum to ensure balance and depth in the discipline. The last thirty hours of credit must be earned at the University of Memphis.

Additional Program Requirements

Each graduate program listed in this *Bulletin* has minimum degree requirements. In consultation with the faculty, the coordinator of each graduate program may specify any additional requirements, such as prerequisites, a reading knowledge of a foreign language, a working knowledge of statistics,

or specific courses related to graduate or teaching assistantships.

Time Limitation

Doctoral degrees must be earned within twelve (12) consecutive years. All course work must be completed within ten (10) years of the student's original admission to a doctoral program. The student may take a further two years of dissertation credit. However, individual academic units may have more stringent time limitations.

There are no exceptions to program time limitations. However, students may request the option of validating old courses taken at The University of Memphis as described in the "Academic Regulations" of this *Bulletin*. Grades earned in courses at The University of Memphis older than program time limits will be shown on the transcript but will not be included in the computation of the GPA for graduation purposes.

Residency Requirement

The student must commit to full-time study for a minimum of two successive semesters after admission to the degree program to fulfill the residency requirement. Some academic units do not count the summer term towards residency. The College of Education has an alternative residency program; refer to the appropriate section of this *Bulletin* or contact the College for additional information.

Advisory Committee

After admission to the doctoral program, the student will be assigned a major advisor, who must be a full member of the Graduate Faculty, to chair the student's Advisory Committee. This committee will work closely with the student to formulate an approved program of study. The unit head, following consultation with the student and major advisor, will approve the appointment of a minimum of three members to the Advisory Committee. Only one adjunct or affiliate graduate faculty member may serve as a voting member on a doctoral committee. These appointments will be forwarded to the Dean of the Graduate School. The advisory committee is not necessarily, but may be, the same as the dissertation committee (see below).

Qualifying Examination

Individuals seeking a doctoral degree may be required to take a qualifying examination administered by the academic unit in which the student wishes to major. The examination may cover specialized and general knowledge of the major area as well as writing skill. The results of the qualifying exam should be used, in part, to plan the academic program. To be eligible to take this qualifying examination, the student must be fully admitted to the Graduate School. Academic units may hold additional requirements.

Comprehensive Examination

When a student in good standing has completed all required coursework for the doctoral degree or is enrolled in the last semester of coursework (exclusive of dissertation hours), he/she must pass a comprehensive examination. This examination must contain both written and oral components, covering the major and collateral fields of study. Performance must be acceptable to the Advisory Committee (not more than one dissenting vote is allowed). The comprehensive examination is not a course; therefore the results of the examination are not appealable, nor can they be changed after the form has been filed with the Graduate School. Students may take the exami-

nation a second time, however. A second failure results in termination, which is appealable. The retention appeals process is formalized and must be followed in all cases. See the section on Retention Appeals.

A student may register for dissertation hours only after passing the comprehensive examination and submitting an approved Program of Study.

Dissertation Committee

The student will select a dissertation committee (minimum of four members) made up of graduate faculty approved by the head of the academic unit and/or the college director. The chair of the dissertation committee must hold full graduate faculty status. It is strongly recommended that one member be outside the discipline. Only one affiliate or adjunct graduate faculty member may serve as a voting member of a doctoral committee.

Admission to Candidacy

Before an applicant will be officially admitted to candidacy for a doctoral degree, the student must have satisfied the following requirements:

1. The "Application for Admission to Doctoral Candidacy" and an "Intent to Graduate Card" must be filed by the deadline published in the Graduate Bulletin and in the Schedule of Classes, and posted on academic unit bulletin boards on campus. No exceptions will be made if candidacy forms are not submitted by the stated deadlines.
2. An approved Thesis/Dissertation Proposal Form must be filed with any necessary human or animal subjects approvals before *any* research is undertaken.
3. The student must have at least a 3.0 average on all coursework listed on the candidacy forms as well as any other graduate work undertaken at The University of Memphis within the specified time limit (10 years). Grades of "D" or "F" are not accepted for any graduate degree credit but these grades will be computed in the GPA. No more than seven (7) hours of "C+," "C," or "C-" will be counted toward degree requirements.
4. Grades earned on courses taken during the student's final semester may not be used to correct GPA deficiencies. The student must have at least a 3.0 average in all graduate work at the time the Intent to Graduate Card is filed.
5. All coursework offered for the doctoral degree must have been completed within 10 years.
6. The student's entire program, including the dissertation, must be acceptable to the dissertation committee, unit head and/or director of graduate studies in the student's college, and the Dean of the Graduate School.

It will be the responsibility of each graduate student to notify the Graduation Analyst (AD309) of any changes in name or address. Students who are graduating will receive a letter explaining graduation ceremony requirements about one month prior to graduation.

Dissertation

An acceptable dissertation is a requirement for all doctoral degrees. The dissertation must represent a significant scholarly effort that culminates in an original contribution to the field of inquiry. It should reflect the candidate's ability to conduct independent research and interpret in a logical manner the facts and phenomena revealed by the research.

The dissertation proposal (or prospectus) is developed under the guidance of the dissertation committee. All members of the dissertation committee must approve the proposal (prospectus) and the approval form must be filed with the Graduate School.

If human or animal subjects are involved, the appropriate approval forms must accompany the approved Thesis/Dissertation Proposal form. Approval from the institutional review board must be secured before undertaking *any* research.

The dissertation must meet the specific regulations of the academic unit in which the student is majoring and the Graduate School. Consult the academic unit for the acceptable format. The final draft must be approved by all members of the dissertation committee and by the Dean of the Graduate School. This final draft of the dissertation must be submitted to the Graduate School after the defense.

A minimum of three copies of the dissertation must be submitted for binding. The dissertation, which will be microfilmed, must be accompanied by an unnumbered abstract of not more than 350 words. The abstract will be published. Fees to cover the cost of microfilming and publishing are specified in Section 3, under "Miscellaneous Fees," and are to be paid by the student.

Continuous Enrollment

A student must be enrolled for dissertation hours in any semester in which he/she is working with the advisor or using university resources. Furthermore, doctoral candidates must register for dissertation credit each academic semester (fall and spring) until the dissertation is completed. See individual academic units for specific requirements. Failure to so register will result in the student being charged tuition for each semester he or she did not enroll.

The only exception to this policy is if the student's major professor is on leave or otherwise unavailable. In such cases the approval of the appropriate college director and the Dean of the Graduate School is required. In case of serious medical circumstances, students may request a leave of absence, subject to the approval of the unit graduate coordinator, the college director of graduate studies, and the Dean of the Graduate School. Retroactive approval will not be granted. A leave of absence does not extend time limit to degree.

Dissertation Credit

Credit will be posted upon the completion and acceptance of the dissertation. No more than the maximum number of semester hours for dissertation accepted by the academic unit will be counted towards the degree, even though the student may have registered for additional hours in order to maintain continuous enrollment.

Defense of Dissertation

After the completion of the dissertation and all other prescribed work for the degree, candidates will be given a final oral examination dealing with the dissertation and its relation to the candidate's major field of study. The student's dissertation advisory committee will conduct this exam. All members must be present at the examination. If the student's performance on this examination is satisfactory as judged unanimously by the committee, all requirements for the degree will have been completed.

FINANCIAL ASSISTANCE

Graduate Assistantships

Graduate teaching and research assistantships are available in most of the academic areas of The University of Memphis, requiring 10-20 hours of service per week. Most assistantships are provided by the student's home academic unit. Graduate assistants who work at least 10 hours per week are classified as in-state students for fee-paying purposes for the term of their appointment as graduate assistants only. Graduate assistantship contracts filed by the fourth day of class are eligible for a scholarship equal to the amount of tuition and fees. University-supported graduate assistants are expected to carry a 12-credit-hour load every semester (or 6 hours when enrolled only in thesis or dissertation hours). Nonresident assistants appointed for the preceding spring semester are eligible for in-state fees for summer, whether or not the student holds an assistantship in that summer term. Non-degree and conditional students may not be awarded assistantships. **Graduate assistants must maintain a 3.0 GPA to retain their assistantships.**

Graduate Awards and Fellowships

Graduate student fellowship and award information can be obtained in the Graduate School, AD 308, or on the Graduate School home page. All competitive awards administered by the Graduate School, except the TBR Minority Fellowship, require maintenance of at least a 3.25 GPA. The Graduate School administers the following awards and fellowships:

The *Van Vleet Memorial Doctoral Award* is granted to two or three incoming doctoral students enrolled in the designated science fields of Audiology & Speech-Language Pathology, Biology, Chemistry, Earth Sciences, Mathematical Sciences, Microbiology & Molecular Cell Sciences, Psychology, Biomedical Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering. Eligible students must be nominated by the head of their respective academic unit. The award includes a stipend of \$16,000 per year for four years plus tuition scholarship.

The *Provost's Predoctoral Diversity Award* is granted to two or three outstanding entering doctoral students who are members of a group underrepresented as doctoral students in their academic discipline. Eligible students must be nominated by the head of their respective academic unit. The award includes a competitive stipend for four years plus tuition scholarship.

The *Tennessee Board of Regents Graduate Minority Fellowship* is available to several outstanding African American residents of Tennessee who are fully admitted to a graduate program. Preference is given to students in programs where African Americans are underrepresented. The fellowship is awarded for two years for a master's program or four years for a doctoral program. Subject to continued funding, the fellowships provides a tuition scholarship and a monthly stipend.

The *University of Memphis Society, Inc., Doctoral Fellowship*, established by UMS, Inc., is a \$2,000 fellowship awarded annually to a full-time doctoral student based on exceptional academic achievement.

The *Part-Time Master's Fellowships* are awarded annually to ten entering master's students. Awardees will receive \$1,500 (\$750 per semester; this award does not include a tuition scholarship) and must maintain a 3.5 GPA to receive the second semester funding. These awards are limited to one year.

Applications for the following fellowships should be submitted to the unit listed:

The Fogelman College Of Business And Economics

Arthur Anderson and Company Scholarship: Graduate student pursuing Masters in Accounting. Must have minimum GPA of 3.5.

Business and Economic Alumni Chapter Scholarship: Full-time graduate student; must have minimum GPA of 3.5. Financial need is considered.

Charles Greisbeck Scholarship: Full-time student majoring in Accounting. Must have a minimum GPA of 3.5. Student must have exhibited leadership skills.

Hunko Doctoral Fellowship: Third-year Business Administration doctoral student concentrating in Marketing.

John Malmö Scholarship: Full-time student concentrating in Marketing. Must have a minimum GPA of 3.5.

Morgan Keegan Scholarship: Full-time or part-time student majoring in Finance. Must have a minimum GPA of 3.5.

Dr. G. P. Racz Leadership Fellowship: Full-time student majoring in accounting or international business. Must have a minimum GPA of 3.25. Must have exhibited leadership; may be a graduate assistant.

R. Eugene Smith Scholarship: Graduate student in higher education management, with a GPA of 3.0. Must be a U. S. citizen.

Mark Sowards Memorial Scholarship Fund: Full-time graduate student. Must have a minimum GPA of 3.5. Must have an intent to enter into the field of real estate.

Stacey Steckler Sprinkler Scholarship: Full or part-time student majoring in Accounting with a minimum GPA of 3.5. Financial need is considered.

Tilson Real Estate Fellowship: Full or part-time student majoring in Real Estate with a minimum GPA of 3.5.

The College Of Education

The *Dr. R. Eugene Smith Fellowship* equivalent to in-state tuition is awarded annually to a graduate student pursuing studies in higher education administration.

The *George W. Etheridge Early Childhood Education Scholarship* is a three-year award presented to an early childhood doctoral student who has research experience; demonstrates academic, professional, or civic leadership; and is interested in young children.

The School Of Audiology And Speech-Language Pathology

The *AUSP Alumni Chapter Fellowship* is awarded each spring semester to a graduate student in Audiology and Speech-Language Pathology. The recipient must demonstrate outstanding clinical skills and support of student and academic unit activities.

The *Marion G. Evans/Exchange Club of East Memphis Fellowship* is awarded annually to graduate students training to work with the hearing impaired.

The Herff College Of Engineering

The *Herff Engineering Fellowship* is a \$8,500, one-year, non-renewable award for graduate students in Engineering.

The *Herff Engineering Doctoral Fellowship* is a \$15,000 per year, three-year award for graduate students in Engineering pursuing a PhD degree in which the research emphasis is in an area related to Biomedical Engineering.

Federal Aid

Limited federal assistance, in the form of workstudy, Stafford Loans, or Perkins Loans, is also available. Contact the Office of Student Aid at 901-678-2303 for more information.

VA benefits and Title IV funds for enrollment fees are subject to cancellation and immediate repayment if the recipient stops attending, whether or not he/she has withdrawn or dropped a course. The instructor will report the last known date of attendance as the "unofficial withdrawal date." Students who stop attending will be assigned a grade of "F" in courses that do not reflect an official withdrawal.



3. Expenses

UNIVERSITY FEES AND CHARGES

General: The information in this *Bulletin* concerning fees, tuition, deposits, refunds, and the like is applicable to students enrolled in the Graduate School. It is intended to cover the situations that most students enrolled in the Graduate School will encounter. However, the University may have additional policies and procedures by which fees and charges are implemented or that apply to unusual situations. Similar information for students enrolled in the University's undergraduate colleges and the School of Law is provided in the bulletins of those schools.

All university fees and charges are calculated and assessed consistent with policies and procedures of the Tennessee Board of Regents and The University of Memphis. The listing of any fee or incidental charge in this *Bulletin* does not constitute a contract between the University and the student. **Because of rapidly changing conditions, it may be necessary to alter a fee structure before the next edition of the *Bulletin* is published.**

As a condition of registration, each student will pay the fees in effect for the semester for which he or she registers. The University will usually collect the amount of fees due at the time of registration fee satisfaction each semester in accordance with the residency classification and fee rates in effect. After all enrollments are complete, any over-collections will be refunded and students will be billed for any under-collections.

Application Fee Information

Each student submitting an application for admission to the Graduate School must pay, at the time of submitting his or her first application, a one-time, nonrefundable fee of \$25.00. International applicants must pay a one-time, nonrefundable application fee of \$50.00.

2000-2001 Registration Fee Schedule

RESIDENT (IN-STATE)				
Hours	Maintenance Fee	+	Activity Fee	= Total
1	\$ 197.00	+	6	= \$ 203.00
2	394.00	+	12	= 406.00
3	591.00	+	18	= 609.00
4	788.00	+	24	= 812.00
5	985.00	+	30	= 1,015.00
6	1,226.50	+	44	= 1,270.50
7	1,386.50	+	44	= 1,430.50
8	1,546.50	+	44	= 1,590.50
9	1,706.50	+	44	= 1,750.50
10	1,824.50	+	44	= 1,868.50
11	1,824.50	+	44	= 1,868.50
12	1,824.50	+	44	= 1,868.50

NON-RESIDENT (OUT-OF-STATE)

Hours	Maintenance Fee	+	Out-of-State Tuition	+	Activity Fee	=	Total
1	\$ 197.00	+	\$ 250.00	+	6	=	\$ 453.00
2	394.00	+	500.00	+	12	=	906.00
3	591.00	+	750.00	+	18	=	1,359.00
4	788.00	+	1,000.00	+	24	=	1,812.00
5	985.00	+	1,250.00	+	30	=	2,265.00
6	1,226.50	+	1,500.00	+	44	=	2,770.50
7	1,386.50	+	1,750.00	+	44	=	3,180.50
8	1,546.50	+	2,000.00	+	44	=	3,590.50
9	1,706.50	+	2,250.00	+	44	=	4,000.50
10	1,824.00	+	2,500.00	+	44	=	4,368.50
11	1,824.50	+	2,750.00	+	44	=	4,618.50
12	1,824.50	+	2,893.00	+	44	=	4,761.50

Registration (Enrollment) Fee Information

Maintenance Fee: Maintenance fees are assessed based on the course level and the number of hours enrolled. The maximum fee amount will be the graduate maximum if a student is enrolled for any graduate level courses. Maintenance fee amounts quoted in the Fee Schedule above include the Debt Service and General Access Fee components.

Tuition: Students classified as out-of-state residents by the Office of Admissions, using regulations provided by the Tennessee Board of Regents (TBR), pay the additional out-of-state tuition indicated in the Fee Schedule above. Residency regulations of the TBR are given at the end of this chapter. Information on appeals procedures is available in the Graduate School. **RESIDENCY CLASSIFICATIONS MAY BE CHANGED ONLY BY THE GRADUATE SCHOOL.**

Student Activity Fee: All students enrolled for one to five credit hours pay a student activity fee of \$6.00 per credit hour. All students enrolled for six or more credit hours pay a full-time student activity fee of \$44.00. Students paying the full-time fee are entitled to admission to home athletic events as well as certain health services, concerts, plays, and other student-sponsored activities and social events.

Applied Music Fee: Certain music courses require an additional applied music fee of \$50.00 per semester for each weekly one-half hour lesson. This fee is not included in the Fee Schedule above.

Master Of Business Administration Program (International and Executive Concentrations): All students enrolled in the International MBA concentration are required to pay a matriculation fee of \$3,000 per year. This fee is not included in the fee schedule above. The Executive MBA concentration charges a total program fee of \$13,910 per year for Tennessee residents. Out-of-state residents are charged the current out-of-state tuition rates in addition to the \$13,910 program fee. This program fee covers maintenance fees, tuition, and other expenses of the Executive MBA concentration. The IMBA and EMBA fees are subject to change. For further details contact the Graduate Programs Office at the Fogelman College of Business and Economics (901-678-3721).

Late Registration Fee: A late registration fee of \$100.00 will be assessed to each student who does not complete registration prior to the semester's first day of classes. This fee is not included in the Fee Schedule above.

Late Payment Fee: A late payment fee of 10% (plus 1.25% of the unpaid balance each month through the end of the term) will be assessed to each student who does not satisfy at least the initial installment amount of enrollment fees (50% of fees for the fall or spring semesters; 100% of fees for summer semesters) by the deadline date notes in each semester's *Schedule of Classes*.

Auditing Classes: Fees for auditing classes are assessed on the same basis as fees for credit courses. Courses offered between terms, for concentrated periods during a term, or at specific locations may be subject to fees on a per-hour basis only. All questions in regard to fees, fee payments, refunds, and appeals should be directed to the Bursar's Office, Room 176 Administration Building, 901-678-5579.

Refund Of Registration (Enrollment) Fees

The University adheres to state of Tennessee policy on the refund of student enrollment fees. As such, the following refund percentages of enrollment fees (Maintenance, Out-of-State Tuition, Applied Music, Laboratory Materials, and Student Activity) apply to students who withdraw from the University or who drop to an hourly load below full time:

- A. **100% Refund:** A full (100%) refund of these fees will be provided (1) until the semester's first day of classes, (2) for courses cancelled by the University, and (3) in the case of the death of the student during the semester.
- B. **75% Refund:** A 75% refund will be provided beginning with the semester's first day of classes and extending for a period of time as noted in the term calendar of the *Schedule of Classes* for each semester.
- C. **25% Refund:** A 25% refund will be provided beginning at the expiration of the 75% refund period and extending for a period of time as noted in the term calendar of the *Schedule of Classes* each semester.
- D. **No Refund:** At the conclusion of the 25% refund period, there will be no refund of these fees.
- E. **Title IV:** Students who receive federal Title IV funds and who withdraw during their first semester of attendance at the University may be eligible for a refund of enrollment fees based on the federal pro-rata refund calculation.

Please note that the specific dates for these refund periods are found in the term calendar of each semester's *Schedule of Classes* and that **the refund period ends earlier than the final deadline for dropping a course or withdrawing.**

The University's refund policy is based **entirely** upon the official date of withdrawal or change of course that would result in a refund. **Refunds beyond the specified dates or percentages will not be made** for reasons such as employment conflicts, relocating out-of-town, or other reasons that are beyond the University's control or responsibility.

Registration fee refunds will be processed and mailed to students beginning approximately ten (10) days after classes begin and should usually be completed within four weeks. The University will **offset against proposed refunds any amount owed by the student** to the University.

Other Registration (Enrollment) Fee Information

Summer Semester: The summer semester consists of multiple separate sessions. Registration (enrollment) fees for the summer sessions are determined solely on a semester-hour basis.

Payment of University Fees and Charges: Registration (enrollment) fees may be paid by cash, check, money order, Visa/Mastercard/Discover, Financial Aid/Scholarship Award(s), or University Tiger Fund\$ account. Fees may be paid as soon as the student registers for classes; however, **all registration fees and outstanding debts to the University are due by the fee payment deadline date** noted in the Fee Payment Section of each term's *Schedule of Classes*. The University offers a deferred (installment) payment plan to assist students with the payment of enrollment fees for the fall and spring semesters (not available for summer terms). Please refer to the *Schedule of Classes* for complete information.

Returned Checks / Charge Card Drafts: It is expected that any check or credit card draft given to the University for any reason will be honored by the bank on which it is drawn. Any check or draft dishonored by the bank on which it is drawn may be presented a second time at the discretion of the University. A \$20.00 returned item fee will be assessed for any check/draft returned.

The privilege of making payments to the University by personal check and check cashing privileges will be revoked for any student who has had more than one returned check/draft within a twelve-month period. The suspension of this privilege will be for a period of one year from the date the last item is redeemed.

A student will not be permitted to satisfy registration fees by check if ANY previous check in payment of registration (enrollment) fees has been returned unpaid. Any check or credit card draft presented to the University in payment of enrollment fees that is subsequently dishonored by the bank on which it is drawn will be assessed the Late Payment Fee of \$100.00. Students on a "NO CHECKS" status must be prepared to satisfy registration fees with cash, cashier's check, or by authorized credit card draft.

Indebtedness to the University: Policy of the Tennessee Board of Regents prohibits the enrollment of any person who owes the University any amount of money. All outstanding financial obligations to the University must be satisfied before a student will be allowed to register for courses. Tennessee law prohibits the release of grades, transcripts, or diplomas of any person who has outstanding financial obligations to the University.

Academic Common Market: Participation in the Academic Common Market provides qualified students from various southern states with the opportunity to pay in-state enrollment fees while pursuing certain degree programs at the University of Memphis. See Section 1 for a full description of this program.

Totally Disabled Persons and Persons over 60 Years of Age: Persons who are domiciled in Tennessee and (1) have a permanent disability that totally incapacitates them from the potential to work at an occupation that brings them an income or (2) will become 60 years of age or older during the academic semester in which they begin classes may AUDIT courses at the University of Memphis without paying maintenance fees, tuition charges, student activity fees, access fees, or registration fees. Admission to AUDIT courses will be limited according to space availability on an individual classroom basis.

Persons who are totally disabled and those who will become 65 years of age or older during the academic semester in which they begin classes and who are domiciled in Tennessee may enroll for credit courses at the cost of one-half (1/2) the normal per credit hour fee, not to exceed a maximum of \$75.00 per semester. University Health Services shall examine certification of permanent disability (not the applicant) and determine the eligibility of the applicant under this legislation.

Inquiries concerning these programs may be addressed to Student Information Services, 119 Administration Building.

Student Housing

Residence Halls: Charges for rooms in university residence halls are indicated below (2000-01 rates; subject to change). For information concerning application for rooms, contact the Office of Residence Life 901-678-2295.

Application Procedures: Applications for residence hall space may be obtained from the Office of Residence Life, The University of Memphis, Memphis, TN, 38152. Because spaces are allocated by date of receipt and home address, completed applications accompanied by the required \$100 application/reservation deposit should be returned to the Office of Residence Life as soon as possible. Checks or money orders should be made out to The University of Memphis. Please do not send cash.

Receipt by the Office of Residence Life of the housing application and \$100 check or money order, however, does not guarantee admission to the University or to a residence hall. The Director of Residence Life reserves the right to refuse any housing application, to change or cancel any assignment, or to terminate a resident's occupancy, for justifiable cause.

Contract Period and Conditions: Fall assignment/contracts are for the full academic year (fall and spring semesters). Fall residents wishing to petition for release from their contract for the spring semester must do so in writing by November 1. Residents who cancel after this date, but prior to claiming their key for the spring semester, will forfeit 50% of their application/reservation deposit. Residents who fail to cancel by the close of the check-in period will forfeit the entire \$100 deposit. The application/reservation deposit, once submitted with the application, covers the initial term of occupancy and all subsequent terms of occupancy and continues until such time as it is cancelled in writing. There will be no penalty if written cancellation is received prior to the published deadline for any specific contract period.

Residents claim and vacate their rooms according to directions issued by the Department of Residence Life. Returning and new residents will have claimed their spaces if any or all of the following procedures have occurred: (1) receiving the room key during the check-in period, (2) paying residence hall rent in full or in part by the end of the check-in period, (3) returning the signed contract with the rental payment.

Cancellation Policy: Full deposit and pre-payment of rent will be refunded if: (1) the institution is notified by the following cancellation deadlines for the first semester in which the contract is in force: July 1—fall residents; December 1—new spring residents; May 1—summer residents; (2) the student is prevented from entering the University because of personal medical reasons confirmed in writing by a licensed physician; (3) residence hall space is not available; or (4) if the applicant has not been assigned to a room at the time written cancellation is received by Residence Life; or (5) the student is denied admittance or re-admittance to the University. Full refund will be made in the case of death. Fall residents wishing to petition for release from their contract for the spring semester must do so in writing by November 1. No refunds will be made for other than the above conditions.

Assigned applicants who fail to cancel by the deadline referred to in (1) above but cancel before the close of the check-in period will forfeit 50% of their deposit. Assigned residents who fail to cancel by the close of the check-in period will forfeit their entire deposit. (This is applicable to both the fall and spring semesters.)

Refund of Residence Hall Rent: Refunds of residence hall rent after registration will be prorated on a weekly calendar basis when the student is forced to withdraw from the residence halls: (1) because of personal medical reasons confirmed by a licensed physician in writing, or (2) at the request of the institution for other than disciplinary reasons. Full refund will be made in the case of death.

For reasons other than those stated above, the following procedure shall apply: 75% of fees will be refunded for withdrawal from the residence halls for a period of approximately 14 calendar days beginning with and inclusive of the first official day of classes or within an equivalent period for a short-term course. Twenty-five percent (25%) of fees will be refunded following expiration of the 75% period, for a period of time extending approximately 25% of the time covered by the term. The periods during which refunds of 75% or 25% will be made are exactly the same as the periods during which the same refund percentages are made for maintenance fees. No refunds will be made for other than the above conditions.

2000-2001 STUDENT HOUSING RATES

Residence Halls, per semester

Residence Hall	Room Size	Fee Amount
Rawls	Double	\$1,015
	Single	\$1,480
	Single w/o sink	\$1,285
Richardson	Double	\$1,115
	Single	\$1,590
	Freshman First Program	\$1,950
Robinson	Double	\$1,015
	Single	\$1,480
Smith	Double	\$1,015
	Single	\$1,480
West	Double	\$1,015
	Single	\$1,480
South	Double	\$1,135
	Single	\$1,640
Mynders	Double	\$ 955
	Single (small)	\$1,290
	Single (large)	\$1,345
	Single (private bath)	\$1,410
Carpenter Complex	Apartment	\$1,790
	Townhouse	\$1,850

Summer Session Rates

Residence Hall	Summer Session	Fee Amount
Rawls/Robinson	Pre-Summer	\$260
	First Summer	\$310
	Second Summer/Extended	\$380
Single Summer Rates	Pre-Summer	\$370
	First Summer	\$460
	Second Summer/Extended	\$555

Rawls Single	Pre-Summer	\$325
(w/o sink)	First Summer	\$405
Summer Rates	Second Summer/Extended	\$485
Apartment	First Summer	\$560
Summer Rates	Second Summer/Extended	\$665
Townhouse	First Summer	\$575
Summer Rates	Second Summer/Extended	\$690

Student Family Housing, per month

Phase 1 Units	1 bedroom	\$380
	1 bedroom (renovated)	\$405
	2 bedroom	\$440
	2 bedroom (renovated)	\$465
Phase 2 Units	2 bedroom	\$570

Student Family Housing: Student Family Housing is located on the South Campus approximately one mile from the main campus. Phase One consists of 56 one-bedroom townhouse apartments, 62 two-bedroom townhouse apartments, and 8 two-bedroom flats. All apartments are equipped with stove, refrigerator, garbage disposal, living room carpet, and venetian blinds. Electric central heat and air are also provided. An enclosed private patio is located to the rear of each apartment. The new Phase Two consists of 24 two-bedroom flats. These apartments are equipped with stove, frost-free refrigerator, garbage disposal, dishwasher, venetian blinds, thermal pane windows, hook-ups for stackable washers and dryers, and carpet for living room and bedrooms. Gas central heat and air are also provided. Each apartment has a patio/balcony with locking storage area. Four apartments are specifically designed for physically disabled students.

Application forms may be obtained from the Office of Residence Life in Room 011, Richardson Towers. A \$100 application/ reservation deposit is required when the application is submitted.

Miscellaneous Fees

Automobile Registration: Every vehicle parked on campus property must have a university parking permit (hangtag) properly displayed. A permanent parking permit, which provides access to the University's general parking areas, is issued to students upon their initial enrollment at the University. There is no additional charge to students for their initial general parking permit (or general parking permit validation sticker issued each subsequent semester the student enrolls and satisfies registration fees). Students will be charged a \$10.00 fee for the replacement of their permanent parking permit. Students may also request access to university reserved, resident, or priority (gate access) parking areas, which require payment of an additional parking fee, depending on the level of parking desired.

Credit By Examination: The fee for taking an examination for credit is \$60.00 minimum and an additional \$15.00 for each hour over three (3) per course. These fees are non-refundable and must be paid prior to the examination.

Dissertation: A student completing the doctorate will be required to pay the \$7.50 fee for binding each copy of the dissertation and a fee of \$65.00 to defray the cost of microfilming the dissertation and publishing the abstract. The student will be required to present a receipt from the Bursar's Office to the Graduate School showing that these fees have been paid. A minimum of three copies are required and the student should consult with the department chair or dissertation adviser as to the number of actual copies required.

Meals: The university cafeterias, food service locations, and vending areas, open to all students, provide wholesome food at reasonable prices. The cost of meals per student is estimated to be approximately \$3,200 per academic year (for FY2000-01).

Music Locker / Instrument Rental: Music students are required to have a locker for storage of university-owned musical instruments or equipment. Personal instruments may also be stored in these lockers. A music instrument rental fee of \$25.00 is required. Students will be expected to pay for any damages. A fee of \$5.00 per semester is assessed for the locker rental.

Thesis: Students will be required to present a receipt from the Bursar's Office to the Graduate School showing that a fee of \$7.50 has been paid for each thesis to be bound. A maximum of four copies will be bound. Students should consult with the department chair and/or thesis adviser as to the number of copies required.

Appeal Procedures (Fees And Refunds)

Any individual may appeal the assessment, application, calculation, collection, or interpretation of any university fee, charge, deposit, or refund. The University has developed the following processes for an appeal:

Traffic Fines/Citations: Traffic fines and citations may be appealed through a separate process on forms available from the Parking Office, Office of Judicial Affairs, or the Student Government Association Office.

Residence Life: Appeals related to Residence Life financial matters should be filed first with the Office of Residence Life for review within their process. Decisions of the Office of Residence Life may be appealed in writing to the Office of the Assistant Vice President for Finance.

All Other University Fees/Charges, Refunds, etc.: A written appeal of all other financial matters should be filed first on forms available in the Bursar's Office, 176 Administration Building. Decisions of the Bursar's Office may be appealed in writing to the Office of the Assistant Vice President for Finance. The Bursar's Office will forward any appeals that they cannot address to the Office of the Assistant Vice President.

The Office of the Assistant Vice President for Finance will provide a decision in writing of those matters appealed to that office. This decision may be appealed to the University Fee/Refund Appeals Committee. The recommendation of the Committee will be forwarded to the Vice President for Business and Finance for a final decision, which will conclude the University's appeal process.

University ID Cards

The University of Memphis issues each student an identification card that bears the student's image. There is no charge to the student for the initial university ID card. All students should obtain this permanent identification card, which is used as the primary campus-wide method of determining privileges and accesses permitted to each student.

The university identification card remains the property of The University of Memphis and should be surrendered upon the request of a University official. A student may possess only ONE university identification card at any time.

Students may obtain a replacement for a lost, stolen, or damaged University identification card in 171 Administration Building, between the hours of 7:30am-6:00pm Monday-Thursday, or 7:30am-4:30pm Friday. Students will be charged a \$10.00 fee to replace a lost or stolen card. A charge of \$2.00 will be made to change any data on a card.

Tiger Fund\$

A personal Tiger Fund\$ account, which is accessed through the student's university ID card, is also available to all students at The University of Memphis. Tiger Fund\$ is a declining balance money management program that allows students a convenient way to obtain supplies and services on campus without the need to carry cash or the inconvenience of paying by check or credit card.

Tiger Fund\$ are accepted at numerous campus locations, including the University Store, Health Center, and campus food service locations.

A personal Tiger Fund\$ account can be activated by making a deposit at the Bursar's Office cashier's windows, 177 Administration Building. Additional information on university ID cards and the advantages and convenience of having a personal Tiger Fund\$ account may be obtained from the ID Card Office in 171 Administration Building or by calling the ID Card Office at 678-3028.

RESIDENCY CLASSIFICATION

All determinations concerning the classification of students as in-state or out-of-state for fee purposes are made in the Graduate School. The determinations are based on regulations and guidelines of the Tennessee Board of Regents (see below). If, for any reason, there is a question about a student's state residency classification for fee payment purposes, the student is responsible for requesting a review of his/her residency status before classes begin.

Intent

The public institutions of higher education in the State of Tennessee shall apply uniform rules, as described in these regulations, in determining whether students shall be classified "in-state" or "out-of-state" for fees and tuition purposes and for admission purposes.

Definitions

- (1) "Public higher educational institution" shall mean a university or community college supported by appropriations made by the Legislature of this State.
- (2) "Residence" shall mean continuous physical presence and maintenance of a dwelling within this State, provided that absence from the State for short periods of time shall not affect the establishment of a residence.
- (3) "Domicile" shall mean a person's true, fixed, and permanent home and place of habitation; it is the place where he or she intends to remain, and to which he or she expects to return when he or she leaves without intending to establish a new domicile elsewhere.
- (4) "Emancipated person" shall mean a person who has attained the age of eighteen years, and whose parents have entirely surrendered the right to the care, custody, and earnings of such person and who no longer are under any legal obligation to support or maintain such deemed "emancipated" person.
- (5) "Parent" shall mean a person's father or mother. If there is a non-parental guardian or legal custodian of an unemancipated person, "parent" shall mean such guardian or legal custodian; provided, that there are not circumstances indicating that such guardianship or custodianship was created primarily for the purpose of conferring the status of an in-state student on such unemancipated person.

- (6) "Continuous enrollment" shall mean enrollment at a public higher educational institution or institutions of this State as a full-time student, as such term is defined by the governing body of said public higher educational institution or institutions, for a normal academic year or years of the appropriate portion or portions thereof since the beginning of the period for which continuous enrollment is claimed. Such person need not enroll in summer sessions or other such inter-sessions beyond the normal academic year for his or her enrollment to be deemed "continuous." Enrollment shall be deemed continuous notwithstanding lapses in enrollment occasioned solely by the scheduling of commencement and/or termination of the academic years, or appropriate portion thereof, of the public higher educational institutions in which such person enrolls.

Rules for Determination of Status

- (1) Every person having his or her domicile in this State shall be classified "in-state" for fee and tuition purposes and for admission purposes.
- (2) Every person not having his or her domicile in this State shall be classified "out-of-state" for said purposes.
- (3) The domicile of an unemancipated person is that of his or her parent.
- (4) The domicile of a married person shall be determined independent of the domicile of the spouse.

Out-of-State Students Who Are Not Required to Pay Out-of-State Tuition

- (1) An unemancipated, currently enrolled student shall be reclassified out-of-state should his or her parent, having theretofore been domiciled in the State, remove from the State. However, such student shall not be required to pay out-of-state tuition nor be treated as an out-of-state student for admission purposes so long as his or her enrollment at a public higher educational institution or institutions is continuous.
- (2) An unemancipated person whose parent is not domiciled in this State but is a member of the armed forces and stationed in this State or at Fort Campbell pursuant to military orders shall be classified out-of-state, but shall not be required to pay out-of-state tuition. Such a person, while in continuous attendance toward the degree for which he or she is currently enrolled, is not required to pay out-of-state tuition if his or her parent thereafter is transferred on military orders.
- (3) Part-time students who are not domiciled in this State but who are employed full-time in the State, or who are stationed at Fort Campbell pursuant to military orders, shall be classified out-of-state but shall not be required to pay out-of-state tuition.
- (4) Military personnel and their spouses stationed in the State of Tennessee who would be classified out-of-state in accordance with other provisions of these regulations will be classified out-of-state but shall not be required to pay out-of-state tuition. This provision shall not apply to military personnel and their spouses who are stationed in this State primarily for educational purposes.

Presumption

Unless the contrary appears from clear and convincing evidence, it shall be presumed that an emancipated person does not acquire domicile in this State while enrolled as a full-time student at any public or private higher educational institution in this State, as such status is defined by such institution.

Evidence to be Considered for Establishment of Domicile

If a person asserts that he or she has established domicile in this State he or she has the burden of proving that he or she has done so. Such a person is entitled to provide to the public higher educational institution by which he or she seeks to be classified or reclassified in-state, any and all evidence that he or she believes will sustain his or her burden of proof. Said institution will consider any and all evidence provided to it concerning such claim of domicile but will not treat any particular type or item of such evidence as conclusive evidence that domicile has or has not been established.

Appeal

The classification officer of each public higher educational institution shall be responsible for initially classifying students "in-state" or "out-of-state." Appropriate procedures shall be established by each such institution by which a student may appeal his or her initial classification.

Effective Date for Reclassification

If a student classified out-of-state applies for in-state classification and is subsequently so classified, his or her in-state classification shall be effective as of the date on which reclassification was sought. However, out-of-state tuition will be charged for any semester during which reclassification is sought and obtained unless application for reclassification is made to the classification officer on or before the last day of regular registration of that semester.



4. Degree Programs and Courses

THE COLLEGE OF ARTS AND SCIENCES

HENRY A. KURTZ, PhD,
Interim Dean

LINDA A. BENNETT, PhD,
Associate Dean for Graduate Studies and Research
And Director of Graduate Programs

GRADUATE ACADEMIC PROGRAMS

Department or Division	Major	Concentration Within Major	Degree Offered
Anthropology	Anthropology	(1) Urban Anthropology (2) Medical Anthropology (3) Public Archaeology	Master of Arts (MA)
Biology	Biology	(1) Botany (2) Invertebrate Zoology (3) Vertebrate Zoology	Master of Science (MS) Doctor of Philosophy (PhD)
Chemistry	Chemistry	(1) Inorganic (2) Analytical Chemistry (3) Organic (4) Physical Chemistry	Master of Science (MS) Doctor of Philosophy (PhD)
City and Regional Planning*	City and Regional Planning		Master of City and Regional Planning (MCRP)
Criminology and Criminal Justice*	Criminal Justice		Master of Arts (MA)
English	English	(1) Language and Linguistics (2) Literature (3) Writing (a) Creative (b) Professional (4) English as a Second Language (5) Composition Studies	Master of Arts (MA)
	Creative Writing		Master of Fine Arts (MFA)
	English	(1) Composition Studies (2) Professional Writing (3) Applied Linguistics (4) Textual Studies	Doctor of Philosophy (PhD)
Foreign Languages and Literatures	Romance Languages	(1) French (2) Spanish	Master of Arts (MA)
Geography	Geography		Master of Arts (MA) Master of Science (MS)
Geological Sciences	Geological Sciences	(1) Geology (2) Geophysics	Master of Science (MS)
	Earth Sciences		Doctor of Philosophy (PhD)
Health Administration*	Health Administration		Master of Health Administration (MHA)
History	History		Master of Arts (MA) Doctor of Philosophy (PhD)
		Ancient Egyptian History	Master of Arts (MA) Doctor of Philosophy (PhD)
Mathematical Sciences	Mathematics	(1) Applied Mathematics (2) Mathematics (3) Statistics (4) Computer Science (5) Bioinformatics	Master of Science (MS)
		(1) Mathematics (2) Applied Statistics (3) Computer Science	Doctor of Philosophy (PhD)
Microbiology and Molecular Cell Sciences	Biology	(1) Microbiology (2) Molecular Cell Sciences	Master of Science (MS) Doctor of Philosophy (PhD)
Philosophy	Philosophy		Master of Arts (MA) Doctor of Philosophy (PhD)
Physics	Physics		Master of Science (MS)
Political Science	Political Science		Master of Arts (MA)
Psychology	Psychology	General Psychology	Master of Science (MS)
	School Psychology		Master of Arts (MA)
	Psychology	(1) Clinical Psychology (2) Experimental Psychology (3) School Psychology	Doctor of Philosophy (PhD)
Public Administration*	Public Administration	(1) Urban Management and Planning (2) General Public Administration (3) Health Services Administration (4) Human Resource Administration (5) Nonprofit Administration	Master of Public Administration (MPA)
Sociology	Sociology		Master of Arts (MA)
College of Arts & Sciences and Fogelman College of Business & Economics	Electronic Commerce (see Math Sciences for description)		Master of Science (MS)

*These academic units are part of the School of Urban Affairs and Public Policy.

The College of Arts and Sciences, which includes the School of Urban Affairs and Public Policy, contains fifteen departments and three divisions, each of which offers graduate degrees. Candidates for each of these degrees must pursue a curriculum plan that has the approval of their major advisor, the department chair or division director, and the Dean of the Graduate School. Every graduate student is expected to comply with the general requirements of the Graduate School (see Section 2 of this *Bulletin*) and the program requirements of the degree being pursued (see departmental or divisional listings in this section).

Individual program requirements described in *The University of Memphis Graduate Bulletin, 2001-2003*, are subject to change. Please consult your department or division for changes that may occur before publication of the next issue of this *Bulletin*; or consult the Graduate School website at: <http://www.memphis.edu/gradschool> for annual updates.

MASTER'S DEGREES

The programs for the **MASTER OF ARTS** degree are generally open to those who have completed the Bachelor of Arts degree. Those with a Bachelor of Science degree may enroll in these programs if undergraduate prerequisites are met. Students majoring in the following areas may pursue the Master of Arts degree: Anthropology, Criminal Justice, English, Geography, History, Philosophy, Political Science, Psychology, Romance Languages, and Sociology (see departmental listings).

The **MASTER OF FINE ARTS IN CREATIVE WRITING** is a 48-semester-hour program for students who plan to pursue a career in fiction writing or poetry. Admission to the program is based primarily on a portfolio of work in the student's chosen genre. The course work includes both literature and writing classes, and culminates with submission of a publishable collection of fiction or poetry as the thesis.

The program for the **MASTER OF PUBLIC ADMINISTRATION** is generally open to students with preparation in the social sciences or in business courses. Students working toward this inter-disciplinary degree complete a core curriculum in public administration courses and a concentration in one of the following areas: Urban Management and Planning, General Public Administration, Health Services Administration, Human Resource Administration, or Nonprofit Administration.

The **MASTER OF HEALTH ADMINISTRATION** is a 48-semester-hour program for those interested in managerial and administrative careers in the health care community.

The programs for the **MASTER OF SCIENCE** degree are generally open to students with a science background. Students enrolled in the following areas may pursue the Master of Science degree: Biology, Chemistry, Geography, Geological Sciences, Mathematical Sciences, Microbiology and Molecular Cell Sciences, Physics, and Psychology (see departmental listings). Jointly with the Fogelman College of Business and Economics, the College of Arts and Sciences also offers an interdisciplinary Master of Science degree in Electronic Commerce. This degree is administered by the Division of Computer Science within the Department of Mathematical Sciences.

The **MASTER OF CITY AND REGIONAL PLANNING** is a professional degree for students interested in government and business careers. Students complete the following: a core curriculum of 30 semester hours; a 15-hour elective curriculum with possible subjects in economic development planning, urban design, land use and transportation planning, planning information systems, housing and community development, planning law, and environmental planning; and a 3-hour Capstone Project that integrates one or more elective subjects with the core curriculum.

DOCTOR OF PHILOSOPHY DEGREE

The Doctor of Philosophy Degree is offered in the following departments within the College of Arts and Sciences: Biology, Chemistry, English, Geological Sciences, History, Mathematical Sciences, Microbiology and Molecular Cell Sciences, Philosophy, and Psychology. General requirements for the PhD Degree are outlined in these departmental listings. More detailed information about prerequisites, course work, research requirements, etc., may be obtained from the chair or graduate coordinator of the respective departments. Any of these departments may choose to admit a student to doctoral study without requiring the master's degree as a prerequisite.

ANTHROPOLOGY

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- LINDA A. BENNETT, *Professor*
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DAVID H. DYE, *Associate Professor*
PhD (1980), Washington University [2003]
RUTHBETH FINERMAN, *Associate Professor*
PhD (1985), The University of California at Los Angeles [2004]
STANLEY E. HYLAND, *Associate Professor*
PhD (1977), The University of Illinois, Urbana-Champaign [2006]
CHARLES WILLIAMS, JR., *Associate Professor*
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PhD (1997), The University of Kentucky [2004]
ELLEN SHLASKO, *Assistant Professor*
PhD (1997), Yale University [2004]
JOHN D. WINGARD, *Assistant Professor*
PhD (1992), The Pennsylvania State University [2003]

ADJUNCT MEMBER

- CHARLES H. MCNUTT, *Professor Emeritus*
PhD (1960), The University of Michigan, Ann Arbor [2002]

- I. The Department of Anthropology offers a Master of Arts degree with a major in Anthropology with the purpose of training students as competent practicing anthropologists in the fields of multiethnic community organization, health care delivery systems, cultural resource management and service in archaeology.
- II. Concentrations are available in Urban Anthropology, Medical Anthropology, and Public Archaeology. Each student will plan his or her program in consultation with his or her major advisor.
- III. M.A. Degree Program

A. Program Admission

Admission to both the Graduate School and the department is required. To meet departmental requirements for admission, students must submit a letter of intent, three letters of recommendation, and complete the GRE. In addition to their undergraduate academic record, applicants will be considered on the basis of their GRE scores, work experience and career plans as described in the letter of intent. Except in exceptional circumstances, students should have a 3.0 undergraduate record and at least 450 scores on each of the verbal and quantitative GRE subtests.

Admission to the program is not automatic upon meeting minimum departmental admission requirements. Students are selected from the pool of qualified applicants and the number selected depends on the availability of financial aid and adequate faculty supervision.

Note: Deadline for completion of submission is April 1 for the following fall semester and November 13 for the following spring semester. Summer school admission must be completed by May 1 for entrance into the Graduate School and the departmental program. Field school admissions (only) will be accepted until May 15. Late submissions may, in exceptional circumstances, be considered on an individual basis, but will normally be deferred to the following semester.

B. Program Requirements

1. A total of 30 semester hours course-work plus satisfactory performance in a practicum (Anthropology 7985—6 hours credit) for a total of 36 semester hours.
2. Satisfactory completion of the core curriculum (14 hours).
3. Satisfactory completion of track-specific requirements (6 hours).
4. At least 70% of the program (i.e. 26 hours) must be taken at the 7000 level.
5. Satisfactory performance on a comprehensive exam.
6. The Master's Degree in Anthropology is an interdisciplinary degree and students are encouraged to take up to 9 semester hours of their work outside of the Department of Anthropology, depending upon their area of interest and the nature of previous work experience.
7. Intensive Writing Option. Some students may choose to pursue an intensive writing option. Students who choose this option must complete all of the requirements listed above, plus one of the following writing courses, for a total of 39 semester hours.
 - a. Professional Writing Assignment (all tracks). Students will enroll in and satisfactorily complete the requirements for ANTH 7995 (3 hours).
 - b. Thesis (Archaeology track only). Students will enroll in and satisfactorily complete the requirements for ANTH 7996 (3 hours).

ANTHROPOLOGY (ANTH)

6020. Visual Archiving in Anthropology. (3). Anthropological use of photography as a research tool; emphasis on anthropological field museum and laboratory photography. NOTE: Prospective students are advised to obtain a list of course expenses from the Anthropology Department before registering. PREREQUISITE: ART 2701 or permission of instructor.

6051. Anthropology and Education. (3). Advanced study of the cultural transmission process with emphasis on identifying differing behavioral, cognitive and learning styles of various ethnic groups within American society and selected third world countries. Encounters of U.S. subcultural groups with the public education system. PREREQUISITE: Permission of instructor.

6065. Contemporary Anthropological Theory. (3). Contemporary growth of theories and methods in anthropology. PREREQUISITES: ANTH 1100 and 1200; or permission of instructor.

6111. Human Adaptations (3). Examines the physical and cultural adaptations of humans in an ecological context; information from primate studies, the archaeological record and studies of contemporary societies; ecological context of physical adaptations, cultural adaptations, language, social organization. PREREQUISITE: ANTH 1100, 1200 or permission of instructor.

6120. Africa's New World Communities. (3). Survey of African-American cultures in the New World emanating from 17th and 18th century slave trade; focus on African Diaspora; Caribbean, Central America, South America, and North America.

6200. Ecological Anthropology. (3). Critical examination of concepts for ecological analysis of formation, maintenance, and change of human groups; draws on the archaeological record and contemporary studies to examine interactions between cultures and environments. PREREQUISITE: ANTH 1100, 1200 or permission of instructor.

6220. Human Dimensions of Natural Resource Management. (3). Role of culture in the use and management of natural resources; discusses how societies construct knowledge about nature and attribute value to it; examines how indigenous knowledge, alternative value systems, and traditional management strategies influence policy decisions at the local, national, and international levels. PREREQUISITE: ANTH 4200 or permission of instructor.

6251. Psychological Anthropology. (3). (6751). Examines the relationship between culture and personality; cross-cultural comparison of perspectives on cognition, mental illness, ethnopsychiatry, and ethnotherapies.

6252. Economic Anthropology. (3). Comparative analysis of economic systems and their functional relationships to other aspects of culture; cultural constructions of wealth, value, property.

6253. Anthropology of Religion. (3). Comparative analysis of religious systems and their functional relationships to other cultural institutions; interrelations of myth, magic, and ritual; types of religious institutions and religious practitioners.

6301. Archaeology of North America. (3). Description and distribution of prehistoric cultural remains in North America and Mesoamerica; major regional sequences, extending from the earliest evidences of human occupation until historic times.

6325. Archaeological Field Techniques. (3). Field excavation, specimen preparation, use of survey instruments and photography, map making and archaeological record keeping. May be repeated for maximum of 6 hours credit. PREREQUISITE: permission of instructor.

6326. Archaeological Laboratory Techniques. (3). Methods and techniques in archaeological laboratory analysis; emphasis on organization and supervision of laboratory procedures. PREREQUISITE: Permission of instructor.

6333. Archaeological Site Reconnaissance. (3). Field course to provide basic understanding of applied archaeology including governmental Phase I, Phase II research; site survey, site mapping, surface collections, site testing, and rapid site assessment. PREREQUISITE: permission of instructor.

6336. Native Peoples of the Mid-South. (3). Archaeology and ethnology of the Southeast; intensive study of various Native American cultures of Tennessee and bordering states. PREREQUISITE: ANTH 1100, 1200, 1300, or permission of instructor.

6370. Historic Archaeology. (3). Review of the contributions of archaeologists to historical research; methods and techniques of archaeologists as required and modified by the excavation and interpretation of historic materials; allied specialties unique to Historic Archaeology including documentary investigations and the conservation and restoration of existing structures.

6382. Professional Practices in Museums. (3). (Same as ARTH 6382). Basic aspects of museum organization, management, exhibit planning and execution, and maintenance of collections and records.

6390. Archaeology. (3). Introduction to basic archaeological concepts; topics include history of archaeology; theory, methodology, techniques, and research strategies.

6411. Urban Anthropology. (3). Anthropological studies of pre-industrial and industrial cities; urbanization, movements of social transformation and other processes of adjustment to an urban milieu; urban slums, ethnic enclaves, and housing developments in cross-cultural perspective; urban and social kinship and social organization; urban community development; urban research techniques.

6412. Neighborhood Development and Poverty. (3). Role of various institutions and their relationship to developmental needs of inner-city neighborhoods; evolution of American cities as context for understanding urban neighborhoods and poverty; government and foundations in shaping policy; neighborhood associations and non-profits; role of the anthropologist in contributing to a better understanding of neighborhoods and various intervention strategies particularly in the Mid-South.

6413. Anthropology of Tourism. (3). Cultural dynamics and dilemmas of tourism and tourist development; tourism assessed in terms of impacts on the host culture, tourists, and the environment; also assessed as development alternative, driver of cultural change, and form of local, regional, national, international, and intercultural relations.

6414. Comparative Work and Production Systems. (3). Advanced study of changes in work units and production systems beginning with early industrial capitalism, evolving through stages of integrated mass production, and finally the current restructuring of a global system; focus on flexible mass production, involvement of the periphery, workplace innovation, international labor migration, and human resource development. PREREQUISITES: ANTH 1200 or ANTH 3282.

6420. American Folklore. (3). Selected genres of American folklore, including folk religion and belief, folk medicine, folksong and music, narrative and humor (jokes and riddles). Comparisons to other cul-

tures. Emphasis on role of folklore in maintenance of tradition, in social change, and in concept of culture.

6511. Medical Anthropology. (3). Cross-cultural analysis of bio-behavioral components of infectious, nutritional, genetic, chronic and psychiatric diseases. Individual and cultural reactions to medical care, professionals, and health care delivery systems.

6531. Alcohol, Drugs, and Culture. (3). Cross-cultural comparison of beliefs, rituals, and meaning of substance use and abuse; examination of biological and cultural evidence on the origin and development of problems; implications for prevention, early intervention, and treatment.

6541. Nutritional Anthropology. (3). Cross-cultural comparison of human diet; assessment; cultural and health value of foods; hunger and malnutrition; acculturation and dietary change.

6551. Culture, Sex, and Childbirth. (3). Review of biological, environmental, social, and cultural factors influencing human reproduction; comparison of cultural and clinical perspectives on sexual orientation and behavior, sexually transmitted diseases, fertility, birth control, pregnancy, birth, and postpartum care; evaluation of alternative delivery systems in Western and non-Western societies.

6561. Cultural Context of Deviant Behavior. (3). Review of perceptions of normality in different societies, cultural definitions of and responses to deviance, promotion and discouragement of inappropriate behavior; evaluation of mental illness, violence, drug abuse, cannibalism, suicide, sexual practices, and everyday behavior in relation to cultural definitions of normality.

6840. Israel: Antiquity in Modernity. (3). (Same as JDST 6840). Interdisciplinary examination of relationship between ancient traditions and modern issues in Israel; emphasis on relationship between historical conditions, conflicts, and interconnections, as well as new choices facing Israel.

6841. Biblical Archaeology. (3). (Same as JDST 6841). Relationship between historical texts in Hebrew Bible and historical evidence from archaeological research in Israel and surrounding area; emphasis on how archaeological evidence and Biblical narratives illuminate each other.

†7001. Internship for Graduate Assistants. (1-3). Supervision of and consultation with anthropology graduate assistants. May be repeated. PREREQUISITE: Limited to anthropology majors; approval of graduate coordinator.

†7002. Reading for Comprehensives. (1-3). Arranged on individual basis for anthropology graduate students only. May be repeated. PREREQUISITE: Limited to anthropology majors; approval of graduate coordinator.

†7004. Teaching Skills for Graduate Assistants. (1-3). Overview and practical demonstrations of art of teaching anthropology. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Limited to anthropology majors; permission of graduate coordinator.

†7007. Anthropological Field Trips. (1-3). Travel to regional neighborhoods, communities, and archaeological sites; may include cultural, geological, and physiographical areas of the Mid-South; specific emphasis on visual examination of social, cultural, and biophysical environment and preparation of field notebooks. May be repeated for a maximum of 3 credit hours. PREREQUISITE: Limited to anthropology majors; permission of graduate coordinator.

7075-8075. Methods in Anthropology. (4). Critical examination of field methods and research designs in selected areas of anthropology; major trends in contemporary anthropological research as a preparation for applied research. PREREQUISITE: Non-majors must have permission of instructor.

7076-8076. Techniques of Anthropological Data Analyses. (4). Construction and analysis of data bases developed from ongoing anthropological projects; review of frequently used statistical techniques in anthropological literature, hypothesis testing, and methods of presentation. PREREQUISITE: ANTH 7075 or permission of instructor; non-majors must have permission of instructor.

7100-8100. Seminar in Biocultural Anthropology. (3). Topics include principles of human genetics, the biological and cultural aspects of race, the hereditary and environmental factors in modern human variation, medical and nutritional anthropology. PREREQUISITE: Non-majors must have permission of instructor.

7200-8200. Seminar in Cultural Anthropology. (3). Topics include the nature of culture and its various aspects including language, social organization, economics, technology, the development of civilization, and the process of urbanization. PREREQUISITE: Non-majors must have permission of instructor.

7250. Community, Culture, and Program Evaluation. (3). Cultural perspectives on program evaluation in community settings; theoretical and methodological approaches to evaluation of human service programs; culturally competent evaluations using ethnographic methods; role of anthropology in program evaluation at national and international levels. PREREQUISITE: Non-majors must have permission of instructor.

7255. Applied Anthropology and Development. (3). Cross-cultural review of processes of change, grassroots development and planning in industrialized world; models of change, specializations in applied anthropology, and development of public policy on international issues of housing, education, health, and economic development.

7310. Archaeological Theory and Method. (3). History of archaeology and development of conceptual framework for archaeological data collection and interpretation; current theories and methods including use of allied specialties. PREREQUISITE: Non-majors must have ANTH 1300 or permission of instructor.

7311. Public Archaeology. (3). Roles and responsibilities of the archaeologist in contract and salvage work, in museum research and administration, and in the public dissemination of archaeological information. A review of relevant state and federal legislation.

7315. Chiefdoms. (3). Intensive study of chiefdom societies based on ethnohistoric and archaeological data. PREREQUISITE: Non-majors must have ANTH 1300 or permission of instructor.

7321. Archaeological Field Analysis. (3). Methods of dealing with archaeological field problems; individual instruction in collection, recording, and field analysis of both historic and prehistoric archaeological data. PREREQUISITE: Non-majors must have ANTH 1300 or permission of instructor.

7360. Environmental Reconstruction. (3). Advanced study of cultural ecology in past environmental regimes; emphasis on interdisciplinary approach to extinct social systems and their relationship with the environment.

7380-89. Special Topics in Archaeology. (3-6). Topics in Public Archaeology. No more than six hours may be counted toward degree requirements in Anthropology. PREREQUISITE: Non-majors must have ANTH 1300 or permission of instructor.

7390-99. Special Topics in Museology. (1-3). Topics in site interpretation/museology. No more than six hours may be counted toward degree requirements in Anthropology.

7411. Urban Anthropology in the Mid-South. (3). Discussion and analysis of community economic development in the Mid-South region from prehistoric to present time; inter-relationship of cultural values, regional social structures and political economy in terms of international and national industrial trends.

7490-99. Special Topics in Urban Anthropology. (3). Topics of special interest in Urban Anthropology. No more than six hours may be counted toward a degree in Anthropology. PREREQUISITE: Non-majors must have permission of instructor.

7511. Anthropology of Health Care. (3). Roles of the various health professions in the delivery of medical care with emphasis on the perception of these roles by racial or ethnic groups in the Mid-South. Lectures by medical professionals and administrators. PREREQUISITE: Non-majors must have permission of instructor.

7521-8521. Biocultural Epidemiology. (3). Concepts and research uniting epidemiology and medical anthropology; explores epidemiologic web of agent, host, and environment in disease; stresses interplay of sociocultural, behavioral, and environmental risk factors; examines applications of epidemiology theory and methods to medical anthropology and global health policy.

7590-99. Special Topics in Medical Anthropology. (3). Topics in Medical Anthropology. No more than six hours may be counted toward degree requirements in Anthropology. PREREQUISITE: Non-majors must have permission of instructor.

7970. Directed Individual Writing. (1-3). Intensive guided study of original data in areas selected by advanced students and accepted by the instructor; preparation of manuscripts for publication. **PREREQUISITE:** Permission of instructor.

7975-8975. Directed Individual Readings. (1-3). Intensive guided study in areas selected by advanced students and accepted by the staff. **PREREQUISITE:** Permission of staff.

7980-8980. Directed Individual Research. (1-3). Intensive guided study of original data in areas selected by advanced students and accepted by the staff; preparation for publication. **PREREQUISITE:** Permission of chair and the designated staff.

†7985. Anthropological Applications. (3, 6). Supervised practical experience in the application of anthropological principles in an agency or facility appropriate to urban, medical, and nutritional anthropology, mental health or archaeology.

†7995. Professional Paper. (3). Preparation and presentation of a professional writing assignment. **PREREQUISITE:** Permission of instructor.

†7996. Thesis. (1, 3, 6). The student must research, write, and defend a thesis on a subject approved by the major professor and advisory committee. **PREREQUISITE:** Permission of instructor.

†Grades of S, U, or IP will be given

BIOLOGY

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Chair

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PhD (1991), The University of Tennessee, Knoxville [2001]
JAMES A. HUGGINS, *Professor*,
PhD (1985), Memphis State University [2001]
ALAN JASLOW,
PhD (1982), The University of Michigan-Ann Arbor [2001]
JOHN A. KUPFER,
PhD (1995), The University of Iowa [2002]
STEPHEN G. MECH,
PhD (1999), Washington State University [2003]
MAZIN B. QUMSIYEH,
PhD (1986), Texas Tech University [2001]
STEVEN B. REICHLING,
PhD (1997), The University of Memphis [2001]
KENNETH A. SCHMIDT,
PhD (1997), University of Illinois-Chicago [2003]
JEFFREY SILVERSTEIN,
PhD (1993), The University of Washington [2001]
CARL F. WATSON,
PhD (1988), Northeast Louisiana University [2001]
MATT R. WHILES,
PhD (1995), University of Georgia [2004]

I. The Department of Biology offers the Master of Science and Doctor of Philosophy degrees with a major in Biology and concentrations in Botany, Invertebrate Zoology, and Vertebrate Zoology.

II. MS Degree Program

A. Program Admission

1. An overall minimum grade point average of 2.75 (on a 4.0 scale) at the undergraduate level.
2. Two letters of recommendation.
3. Scores for the Graduate Record Examination. A minimum of 500 on both the verbal and quantitative portions of the general component of the GRE is usually competitive.
4. Student must have satisfactorily completed ("C" or better) five of the following twelve courses or their equivalents: BIOL 3050 (ecology), BIOL 3730 (physiology), BIOL 3072 (genetics), MMCS 3130 (cell), MMCS 3500 (microbiology), BIOL 3610 (embryology), BIOL 4630 (endocrinology), MMCS 4375 (molecular biology), BIOL 3620 (comparative anatomy), BIOL 3751 (vertebrate zoology), BIOL 4100 (evolution), BIOL 4604 (behavior).
5. Student must have satisfactorily completed ("C" or better) five of the following nine courses or their equivalents: CHEM 1110 (general chemistry I), CHEM 1120 (general chemistry II), CHEM 3311 (organic chemistry I), CHEM 3312 (organic chemistry II), CHEM 4511 (biochemistry), PHYS 2010 (physics I), PHYS 2020 (physics II), MATH 1910 (calculus), MATH 1601 (statistics).

B. Program Requirements (Thesis)

1. A minimum of 30 semester hours beyond the baccalaureate degree is required.
2. The maintenance of a grade point average of 3.0. Continuation of a student who makes a "3.0" or below is at the discretion of the student's Advisory Committee.
3. BIOL 7000, 7004, 7600, and 7996. Attendance at departmental seminars is mandatory. BIOL 7000 must be completed during the first year of residence and BIOL 7600 in the last semester.
4. Pass a written examination covering subject matter designated by the advisory committee. The test will be administered once each semester and during the summer term on a date published by the department.
5. Presentation of research (7600) and a thesis (7996) as approved by the student's Advisory Committee.
6. Pass a final oral examination.

C. Program Requirements (Non-thesis)

1. A minimum of 36 semester hours of graduate courses is required. The total number of semester hours required for graduation will be determined by the student's Advisory Committee based on academic background. No more than 3 semester hours can be satisfied by BIOL 7092.
2. BIOL 7004. Attendance at departmental seminars is mandatory.
3. The maintenance of a minimum grade point average of 3.0. Continuation of a student who makes a "3.0" or below is at the discretion of the student's Advisory Committee.
4. Pass a final written and oral examination which will be administered by the student's Advisory Committee during the final semester of residence.

III. Ph.D. Degree Program

A. Program Admission

1. The prospective doctoral student must normally hold a master's degree from a recognized institution. However, a student may petition for an optional program leading directly to the PhD.
2. All students will be required to submit satisfactory scores for the General and Advanced Placement Test of the Graduate Record Examination with application to enter the Graduate School. A minimum of 550 each on the verbal and quantitative portions of the GRE is usually competitive. In addition, a score in at least the upper 50th percentile in the GRE Biology subject test is usually expected.
3. Two letters of recommendation. A potential major professor must be identified prior to acceptance.
4. A personal interview with departmental personnel.
5. Students applying for the optional program leading from a BS directly to the PhD must have a 3.5 GPA.
6. Student must have satisfactorily completed ("C" or better) seven of the following twelve courses or their equivalents: BIOL3050 (ecology) BIOL3730 (physiology), BIOL3072 (genetics), MMCS3130 (cell)/MMCS3500 (microbiology), BIOL3610 (embryology), BIOL4630 (endocrinology), MMCS4375 (molecular biology), BIOL3620 (comparative anatomy), BIOL3751 (vertebrate zoology), BIOL4100 (evolution), BIOL4604 (behavior).
7. Student must have satisfactorily completed ("C" or better) five of the following nine courses or their equivalents: CHEM1110 (general chemistry I), CHEM1120 (general chemistry II), CHEM3311 (organic chemistry I), CHEM3312 (organic chemistry II), CHEM4511 (biochemistry), PHYS2010 (physics I), PHYS2020 (physics II), MATH1910 (calculus), MATH1601 (statistics).

B. Program Requirements

1. *Course Requirements*—BIOL 8000, 8004, 8200, 8600, and 9000. Attendance at departmental seminar is mandatory. BIOL 8000 or an equivalent must have been completed by the end of first year of residence. A minimum of 3 academic years (72 semester hours) beyond the baccalaureate degree is required. A minimum of 30 semester hours (including 18 semester hours of BIOL 9000 Research and Dissertation) must be taken in residence.
2. *Foreign Language and Research*—Students are required to demonstrate competence in foreign language or research tool areas, or both. This requirement will be determined by each student's Advisory Committee.
3. *Comprehensive Examination and Candidacy*—After two-three years in residency, the graduate student must take the written and oral comprehensive examination in his or her major area.
Admission to candidacy will be recommended to the Graduate School by the student's committee upon satisfactory completion of any language requirement, course work, comprehensive examination, and acceptance of the dissertation project.
4. *Dissertation and Research Prospectus*—A dissertation will be required of all candidates for the doctoral degree. Eighteen (18) hours of research and dissertation credit must be completed during the graduate program. The dissertation must show a mastery of the techniques of scientific research, and it must be a distinct and new contribution to the body of scientific knowledge.
The student's committee must approve the topic, prospectus, and the final dissertation.
5. A minimum of two published or fully accepted papers in refereed scientific journal(s) approved by the dissertation committee is required.
6. *Final Examination*—The final examination will be conducted by the chair of the student's committee. The committee will consist, insofar as possible, of the same persons involved in the comprehensive examinations. The final examination will be an oral defense of the dissertation and will be announced and open to the public. Upon successful completion of the examination and all degree requirements, the committee will recommend awarding the PhD.

BIOLOGY (BIOL)

6002. Toxicology. (3). Effects of foreign substances on biological mechanisms; absorption, excretion, metabolism, and transformation of potentially harmful substances. *Three lecture hours per week.* PREREQUISITES: CHEM 3312 and an upper division physiology course.

6050. Field Technique in Ecology. (4). Applied ecology covering practical training in forest, field, aquatic, and atmospheric sampling and analysis. Extended field trips. *Two lecture, four laboratory hours per week.* PREREQUISITE: Consent of instructor.

6053. Plant Ecology. (4). Relationships of plants and environmental factors at physiological, population, and community scales; ecosystem dynamics at local and landscape scales; emphasis on field techniques. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3050.

6054. Wetland Ecology. (4). Wetlands and wetland resources; attributes of hydrology, biogeochemistry and wetland plants with emphasis on bottomland hardwood forests. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3050 and consent of instructor.

6055. Ecological and Environmental Issues. (3). Ecological perspective on current environmental issues such as conservation and biodiversity, global climatic change, and regulation of chemicals in the environment. *Three lecture hours per week.* PREREQUISITE: BIOL 3050 or consent of instructor.

6060. Limnology. (4). Physical and chemical attributes of lakes, ponds and streams; organisms of fresh water; problems of production; laboratory work emphasizes Tennessee lakes, and practical training in limnological methods and identification of organisms. *Two lecture, four laboratory hours per week.* PREREQUISITE: One year of chemistry.

6100. Evolution. (3). Synthesis of principles and concepts of modern evolutionary theory; geological evolution, biological evolution, and evolution of societies; emphasis on recent developments and current controversies.

6604. Biology of Behavior. (4). Animal behavior, primarily from ecological, physiological, developmental, and evolutionary perspective. *Three lecture, two laboratory hours per week.*

6620. Vertebrate Histology. (4). Microscopic study of normal tissues and organs of the vertebrate body. *Three lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3610 or 3620 or permission of instructor.

6630. General Endocrinology. (3). Anatomy and physiology of the organs of internal secretion; role of hormones in metabolism and development. *Three lecture-demonstration hours per week.* PREREQUISITE: An upper division physiology course.

6640. Ornithology. (4). Biology of birds, with emphasis on avian anatomy, physiology, behavior, and reproductive biology. Field trips emphasize identification of local species and techniques of field study. *Two lecture, four field/laboratory hours per week.*

6644. Ichthyology. (4). Fishes, with special emphasis upon the kinds which occur in Tennessee; collection, preservation and identification; life histories, management, and economic importance of fishes. *Two lecture, four laboratory hours per week.*

6651. Field Techniques in Vertebrate Zoology. (4-6). Techniques in extended field study of vertebrates outside the local area. Credit hours to be determined in consultation with instructor.

6740. Mammalogy. (4). Classification, distribution, life histories, economic importance, techniques of field study, methods of collection and preservation of mammals. *Two lecture, four laboratory hours per week.*

6744. Herpetology. (4). Classification, distribution, life histories, techniques of collection and preservation, natural habitats of North American reptiles and amphibians. *Two lecture, four laboratory hours per week.*

6840. Invertebrate Zoology. (4). Invertebrate phyla with emphasis on phylogeny, embryology, and ecology of selected groups. Extended field trip. *Two lecture, four laboratory hours per week.*

6900. Entomology. (4). Morphology, physiology, behavior and ecology of insects. *Three lecture, two laboratory hours per week.*

6930. Insect Physiology. (4). Physiology as applied to the life processes of insects. *Two lecture, four laboratory hours per week.*

†7000-8000. Orientation to Graduate Studies. (2). Source of literature in field of biology, data presentation, graphic techniques and manuscript preparation. *One lecture, two laboratory hours per week.*

7001-8001. Field and Laboratory Techniques in Ecotoxicology. (3). Field and laboratory techniques that evaluate fate and effects of contaminants in ecosystems; environmental distribution and analytical considerations, bioaccumulation and toxicity, laboratory bioassays, community level analyses. *One lecture, four laboratory hours per week.* PREREQUISITE: Permission of instructor.

7002-8002. Ecotoxicology. (3). Pollutants in ecosystems; environmental fate and distribution, cycling, bioaccumulation, bioavailability, transfer, laboratory and field toxicity evaluations, and environmental risk assessment of contaminants in aquatic and terrestrial systems; toxicology integrated with environmental chemistry, physiology, ecology and public policy. *Three lecture hours per week.* PREREQUISITE: Permission of instructor.

7003-8003. Fate of Chemicals in the Environment. (3). Physical, chemical, and biological behavior of chemicals in the environment; distribution and fate of natural and xenobiotic contaminants in water, soil, and air; simple models for describing and predicting how chemicals behave in the environment. *Three lecture hours per week.* PREREQUISITE: Permission of instructor.

†7004-8004. College Biology Teaching. (1). (Same as MMCS 7004-8004). Under faculty supervision, graduate students participate in teaching of laboratory sections of existing undergraduate courses in the biological sciences (MMCS or BIOL). Student's performance evaluated by faculty member in charge and appropriate grade assigned.

†7006-8006. Care and Humane Use of Laboratory Animals. (2). (Same as MMCS 7006-8006). Care and use of live vertebrate animals in research and teaching. Students must enroll in this course before working with live vertebrate animals; fulfills requirements of Federal Animal Welfare Act and NIH Guide. *One lecture and two laboratory hours per week.* PREREQUISITE: Permission of instructor.

7010-8010. Principles and Methods of Systematic Biology. (3). Systematic philosophies and numerical methods developed to deal with systematic and taxonomic problems. Discussions of international rules, concept of species, and the roles and aims of practicing systematists. Projects designed to give practical experience in analyzing data. *Two lecture, two laboratory hours per week.*

7015-8015. Aquaculture. (3). Principles and procedures related to the culture of commercially important freshwater organisms under controlled conditions. *Three lecture hours per week.*

7070-8070. Cytogenetics. (4). Current theories concerning the nature of the gene and the mechanisms of recombination and mutation. Chromosome aberrations and their genetic behavior. *Three lecture, two laboratory hours per week.* PREREQUISITE: BIOL 3072.

†7092-8092. Research. (1-6). Consultation, reading, and laboratory work investigating selected topics in biology. Formal paper with review of literature and results of investigation required. Only 4 semester hours credit may be counted toward degree requirements.

7100-8100. Advanced Topics in Evolution. (3). Current concepts and controversies in evolutionary theory. *Three lecture hours per week.* PREREQUISITE: Permission of instructor.

7130-8130. Comparative Animal Physiology. (4). Analysis of the physiological mechanisms of animal adaptation and their relevance to evolution, distribution and survival in diverse environments. *Two lecture, four laboratory hours per week.* PREREQUISITES: An upper division course in physiology and organic chemistry.

7250-8250. Community and Landscape Ecology. (4). Distributions of organisms on worldwide and local basis with emphasis on factors influencing distribution and growth. *Two lecture, four laboratory hours per week.* PREREQUISITE: BIOL 3050 or consent of the instructor.

7335-8335. Hormones and Behavior. (3). Examines the relationship between endocrinology and behavior in animals and humans and how this relationship underlies survival and reproduction. PREREQUISITE: Endocrinology (BIOL 4630-6630) or permission of instructor.

7340-8340. Behavioral Ecology. (3). Examines the influence of natural selection on animals' ability to exploit resources, avoid predators, secure mates, rear offspring, and communicate with conspecifics.

7350-8350. Evolutionary Ecology. (3). Provides the basic foundation for applying genetic and evolutionary theory to the ecology of plants and animals. Emphasis on genetic and phenotypic adaptations of plants and animals to their environment.

7360-8360. Plant and Environment. (3). Discusses plant responses to environmental changes and potential effects of global climate changes on plant health and function. *Two lecture, two laboratory hours per week.* PREREQUISITES: plant physiology (BIOL 3230 or equivalent), plant ecology (BIOL 4053-6053 or equivalent), or permission of instructor.

7370-8370. Current Topics in Wetland Ecology and Management. (3). A wide range of topics relating to wetland science and issues at national and regional levels, including wetland classification, hydrology, and biochemistry, with special emphasis on regional bottomland forests. *Two lecture, two laboratory hours per week.* PREREQUISITES: wetland ecology (BIOL 4054-6054) or equivalent or permission of instructor.

†7600-8600. Seminar in Biology. (1). (Same as MMCS 7600). Selected topics in the biological sciences. Credit is earned when the results of the student's thesis work is presented.

7610-8610. Environmental Effects on Development. (2). Environment-gene interactions and developmental plasticity; evolutionary, physiological, morphological, and ecological consequences of these interactions. *Two lecture hours per week.*

7700-40-8700-40. Special Topics in Biology. (1-4). Current topics of special interest in biology. PREREQUISITE: Permission of instructor.

7750-8750. Population Ecology. (4). Examination and quantification of the processes that influence population dynamics. *Two lecture, four laboratory hours per week.* PREREQUISITES: BIOL 3050.

7751-8751. Conservation Biology. (4). Application of biological principles towards the conservation of natural systems and the organisms they contain. *Two lecture, four laboratory hours per week.* PREREQUISITE: Permission of the instructor.

†7996. Thesis. (1-6). (Same as MMCS 7996).

†8200. Seminar in Biology. (1). (Same as MMCS 8200). Selected topics in biological sciences. Credit is earned when a seminar on the dissertation problem and research is presented to the department during the second year of the doctoral program.

†9000. Doctoral Research and Dissertation. (1-10). (Same as MMCS 9000). The dissertation must be an independent research project applying a mastery of the techniques of scientific research. It must be a distinct and new contribution to the body of scientific knowledge. Minimum total of 18 hours is required.

The courses listed below are taught at the Gulf Coast Research Lab, Ocean Springs, Mississippi. The University of Memphis residence credit is given through affiliation with the laboratory.

6010. Aquaculture. (6). Technology, principles, and problems relating to the science of aquaculture; emphasis on culture of marine species. PREREQUISITES: 16 hours of zoology including invertebrate and vertebrate zoology or ichthyology.

6020. Comparative Histology of Marine Organisms. (1-6). Histological organization of representative marine organisms. Fixation, processing, and study of tissues using light microscopy, transmission and scanning electron microscopy. Structural changes and physiological changes during life cycle of organism including histopathology. PREREQUISITES: Permission of instructor.

6051. Marine Ecology. (5). Relationship of marine organisms to their environment, effects of temperature, salinity, light, nutrient concentration, currents, food, and competition on abundance and distribution of marine organisms. PREREQUISITES: 16 hours of biology including general zoology, general botany, and invertebrate zoology.

6052. Salt Marsh Plant Ecology. (4). Botanical aspects of local marshes. Plant identification, composition, structure, distribution, and development of coastal marshes. Biological and physical interrelationships. Primary productivity and relation of marshes to estuaries and associated fauna. PREREQUISITES: General botany, plant taxonomy, plant physiology, and general ecology or consent of instructor.

6200. Marine Botany. (4). Local examples of the principal groups of marine algae and maritime flowering plants, treating structure, reproduction, distribution, identification and ecology. PREREQUISITE: Ten hours of biology, including introductory botany, or consent of instructor.

6300. Coastal Vegetation. (3). General and specific aspects of coastal vegetation, with emphasis on local examples. PREREQUISITES: 10 hours of biology, including general botany.

6500. Marine Microbiology. (5). Role of microorganisms in the overall ecology of the oceans and estuaries. PREREQUISITES: General microbiology and environmental microbiology or consent of instructor.

6600. Marine Vertebrate Zoology and Ichthyology. (6). Marine Chordata, including lower groups and the mammals and birds, with most emphasis on the fishes. PREREQUISITES: 16 hours of zoology including comparative anatomy or consent of the instructor.

6610. Early Life History of Marine Fishes. (4). Reproductive strategies and developmental processes of marine fishes. Temporal and spatial distribution patterns, population dynamics, and ecological interactions of fish eggs and larvae. Methods of sampling and identifying eggs and larvae. PREREQUISITES: Ichthyology, fisheries biology, ecology, and/or consent of Instructor.

6646. Marine Fisheries Management. (4). Overview of practical marine fishery management problems. PREREQUISITES: Consent of instructor.

6700. Behavior and Neurobiology of Marine Animals. (4). Behavior, neuroanatomy, and neurophysiology of marine animals; emphasis on the neural mechanisms underlying behavior of selected invertebrates, fishes, birds and mammals. PREREQUISITES: 16 hours of zoology and or psychology or consent of instructor.

6800. Marine Invertebrate Zoology. (6). Important freeliving, marine and estuarine invertebrates of Mississippi Sound and adjacent continental shelf of northeastern Gulf of Mexico; emphasis on structure, classification, phylogenetic relationships, larval development and functional processes. PREREQUISITES: 16 hours of zoology including introductory invertebrate zoology.

6844. Parasites of Marine Animals. (6). Parasites of marine animals with emphasis on morphology, taxonomy, life histories and host parasite relationships. Lecture, laboratory and field work. PREREQUISITES: General parasitology or consent of the instructor.

6850. Fauna and Faunistic Ecology of Tidal Marshes. (4). Taxonomy, distribution, trophic relationships, reproductive strategies and adaptation of tidal marsh animals; emphasis on those occurring in northern Gulf marshes. PREREQUISITES: 16 hours of biology and junior standing or consent of instructor.

†7093. Problems in Zoology. (3-6). Supervised research on specific problems in marine zoology for graduates. PREREQUISITE: BIOL 6800 or 6600.

†Grades of S, U, or IP will be given

CHEMISTRY

Room 210, J.M. Smith Building

PETER K. BRIDSON, PhD, Chair

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MEMBERS

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PhD (1982), The University of California at Berkeley [2004]
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PhD (1990), The University of Florida [2004]
CHHABIL DASS, Associate Professor,
PhD (1984), The University of Nebraska at Lincoln [2006]
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PhD (1977), The University of Florida [2001]
YING-SING LI, Professor,
PhD (1968) The University of Kansas [2004]
ROGER V. LLOYD, Associate Professor,
PhD (1971), Carnegie-Mellon University [2004]
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ABBY L. PARRILL, Assistant Professor,
PhD (1996), The University of Arizona [2004]
R. GREGORY PETERS, Assistant Professor,
PhD (1997), The University of Wyoming [2005]
EUGENE PINKHASSIK, Assistant Professor,
PhD (1997), Institute of Chemical Technology, Prague [2006]

ASSOCIATE MEMBERS

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RICHARD L. PETERSEN, Associate Professor,
PhD (1975), The University of Wisconsin-Milwaukee [2004]

ADJUNCT MEMBERS

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PhD (1993), University of Newcastle-upon-Tyne [2004]
DUANE MILLER,
PhD (1969), University of Washington [2003]
PARTHA S. RAY,
PhD (1982), University of East Anglia, England [2003]
DAVID P. WHITE,
PhD (1993), University of the Witwaters-Rand, Johannesburg [2004]

I. The Department of Chemistry offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees with a major in chemistry. Concentrations are available in analytical, computational, inorganic, organic, and physical chemistry. Related courses may be taken in other departments including physics, mathematics, geology, biology, and engineering and in fields other than the student's major within the Department of Chemistry.

II. MS Degree Program

A. Program Admission and Prerequisites

Prospective students, in addition to meeting the requirements for admission to The Graduate School, are required to present as a prerequisite for admission a satisfactory record of undergraduate work in chemistry; normally 32 semester hours of chemistry will be required, including quantitative analysis, organic, and physical chemistry. Students who are deficient in undergraduate work may be admitted and the deficiencies removed without graduate credit.

B. Program Requirements

- Diagnostic Examinations**—Before registering for the first time, incoming graduate students will take a series of standardized examinations, one each in inorganic, analytical, organic, and physical chemistry. The examinations are at a level equivalent to completion of the following undergraduate courses at the University of Memphis: CHEM 4111 (inorganic), 4211 (analytical), 4311 (organic), and 4411 (physical). A candidate for the Master of Science degree must make at least 50th percentile on three of these tests or take the equivalent classes (CHEM 6111, 6211, 6311, 6411). Students should note that a score of 75th percentile on the test or a "B" or better in the course is prerequisite to higher level graduate courses in each area.
- Course Work Requirements**—The thirty semester-hour total required is subject to the following restrictions:
 - No more than nine hours of credit at the 6000 level may be counted towards the Master of Science degree. At least nine hours must be in courses numbered CHEM 7100-7899, with at least two areas of chemistry represented.
 - A maximum of six semester hours of Chemistry 7996 (Thesis) can be applied to the thirty semester-hour requirement.
 - A maximum of three semester hours of CHEM 7910/8910 (Special Problems in Chemistry) may be counted toward the thirty semester-hour requirement.
 - Presentation (CHEM 7911) is required of all graduate students. A maximum of four semester-hours from some combination of CHEM 6911, 7911, and 7/8913 (Seminar) may be used to meet the thirty semester-hours required.
 - A maximum of six semester-hours credit can be granted for graduate courses successfully completed at other accredited institutions. Credit previously earned at another institution must be presented for evaluation not later than the end of the student's second semester of enrollment.
 - No more than nine semester-hours of CHEM 7001 (Directed Research) and CHEM 7910 (Special Problems) combined may be counted toward the thirty semester-hour requirement.
- Comprehensive Examinations**—The student must begin the written part of the comprehensive examinations by the beginning of the third semester and take up to eight consecutive tests. These are described in the summary of the administration of the graduate program. A student pursuing the master's degree must obtain a total of at least six points. Any student who has not amassed six points at the completion of eight tests is automatically terminated from the Master's degree program. Written permission from the student's advisory committee is required to delay beginning the tests or to delay continuing once the student has begun taking tests. Within six months of obtaining the required six points, students must complete the oral part of the comprehensive examinations. The student will prepare a Research Prospectus on his or her thesis research problem, to be presented orally to the Advisory Committee in an open meeting and in a written form to the Graduate Studies Committee. The oral comprehensive examination can be repeated.
- Seminar**—Participation in seminar is required during each semester of residence (excluding summer terms). Each student is required to present at least one formal seminar before graduation.
- The Advisory Committee**—Upon admission to the Graduate School, the student will be advised by the Department's Graduate Studies Committee. A student must choose a major professor before the end of the second semester following enrollment. The major professor, in consultation with the student, will recommend to the department chair faculty members to be appointed to the student's advisory committee. This committee, which is appointed as soon as the student has selected a major professor, must be composed of at least three members, with the major professor serving as chair. Upon appointment, the committee will review the student's progress to date and outline an appropriate program tailored to the student's individual interests to permit fulfillment of the degree requirements.

6. *Thesis Option*—Each student must submit a thesis acceptable to the student's advisory committee. The thesis can be based on work done for CHEM 7996, for which a maximum of six credit-hours can be applied to the degree requirement.
7. *Non-Thesis Option*—If a non-thesis program is selected, a student must prepare a detailed report in the form of a review or proposal, based on literature research. Three hours credit for CHEM 7910 will be earned.
8. *Final Oral Examination*—A final oral examination on the student's thesis or report and related material will be administered by the student's advisory committee after completion of all other requirements. This examination will be held seven or more days after the student has distributed copies of the thesis or report to the members of the advisory committee, which must be done at least one month before the end of the semester in which the student expects to graduate. If the final oral examination is unsatisfactory it must be repeated within one year; it may not be repeated more than once.
9. *Retention*—A student pursuing the Master's degree program may be terminated for any of the following reasons:
 - a. Failure to maintain a grade point average of 3.0 or above. A student who has a cumulative grade point average below 3.0 will be placed on probation. Continuation in graduate school must be approved by the Dean of the Graduate School. Any person whose continuation is denied may appeal the decision to the University Council for Graduate Studies and Research.
 - b. Failure to accumulate the requisite number of points on the departmental comprehensive examinations (See Section 3).
 - c. Failure to complete the degree requirements within six years of initial enrollment in the graduate program.
 - d. Failure to satisfy the advisory committee on the final oral examination (See Section 8).

III. PhD Degree Program

A. Program Admission

See MS admission requirements.

B. Program Requirements

1. *Diagnostic Examinations*—Before registering for the first time, incoming graduate students will take a series of standardized examinations, one each in inorganic, analytical, organic, and physical chemistry. The examinations are at a level equivalent to completion of the following undergraduate courses at The University of Memphis: CHEM 4111 (inorganic), 4211 (analytical), 4311 (organic), and 4411 (physical). A doctoral candidate must make at least 50th percentile on all of these tests or take the equivalent classes (CHEM 6111, 6211, 6311, 6411). Students should note that a score of 75th percentile on the test or a "B" or better in the course is prerequisite to higher level graduate courses in each area.
2. *Course Work Requirements*—The doctoral degree program includes the requirement of the satisfactory completion of a minimum of 72 semester hours of graduate credit beyond the BS degree. The 72-hour total is subject to the following restrictions:
 - a. No more than fifteen hours of credit at the 6000 level may be counted towards the doctoral degree. At least twelve hours must be in courses numbered CHEM 7100-7899 (8100-8899), with at least two areas of chemistry represented.
 - b. A maximum of 30 hours credit for CHEM 8001 (Directed Research) and CHEM 9000 (Dissertation) combined can be applied toward the 72-hour total.
 - c. A maximum of 12 hours of CHEM 7/8910 (Special Problems in Chemistry) may be credited toward the total hour requirement.
 - d. A maximum of 12 hours of course work may be included in a field related to chemistry (physical or biological sciences, mathematical sciences, or engineering). Courses taken in related areas must be numbered 6000 or above.
 - e. Presentation (CHEM 7911) and Advanced Presentation (CHEM 8911) are required. A maximum of four semester-hours from some combination of CHEM 6911, 7911, 8911, and 7/8913 may be used to meet the 72 semester-hour requirement.
 - f. A maximum of 30 hours of graduate course credit completed at the University or other accredited institution (including credit applied on an MS degree) may be applied to the 72-hour requirement subject to the approval of the student's advisory committee and the Department's Graduate Studies Committee. A minimum of 18 hours in graduate courses other than CHEM 7/8910, CHEM 7/8913, and CHEM 8001/9000 must be completed at the university.
3. *Residence*—Of the total semester-hour requirement, a minimum of 24 hours must be earned while the student is at The University of Memphis. This requirement cannot be met wholly by attendance at Summer Sessions, and must include at least one academic year of full-time student status.
4. *Comprehensive Examinations*—The student must begin the written part of the comprehensive examinations by the beginning of the third semester and take up to eight consecutive tests. These are described in the summary of the administration of the graduate program. A student pursuing the doctoral degree must obtain a total of at least twelve points. Any student who has not amassed twelve points at the completion of eight tests is automatically terminated from the doctoral degree program. Written permission from the student's advisory committee is required to delay beginning the tests or to delay continuing once the student has begun taking tests. Within six months of obtaining the

required twelve points, students must complete the oral part of the comprehensive examinations. The student will prepare a Research Prospectus on his or her thesis research problem, to be presented orally to the Advisory Committee in an open meeting and in a written form to the Graduate Studies Committee. The oral comprehensive examination can be repeated. A student who changes major professors must present a new Research Prospectus within one semester after the change is made.

Students who enter the PhD program and already hold the MS degree in chemistry must begin taking the cumulative examinations at the first opportunity after initial enrollment if a satisfactory score is made on the diagnostic examinations.

5. *Seminar*—Participation in Seminar is required during each semester of residence (excluding summer terms). A maximum of three semester hours of credit for CHEM 7/8913 is allowable toward the 72 semester-hours required for graduation. Each student is required to present at least one formal seminar before graduation.
6. *The Advisory Committee*—Upon admission to the Graduate School, the student will be advised by the Department's Graduate Studies Committee. A student must choose a major professor from the graduate faculty before the end of the second semester following enrollment. The major professor, in consultation with the student, will recommend to the department chair faculty members to be appointed to the student's advisory committee. This committee, which is appointed as soon as the student has selected a major professor, must be composed of at least five members, with the major professor serving as chair. Of the members of this committee, at least one is to be from a different area of specialization from that in which the student intends to work. Upon appointment, the committee will review the student's progress to date and outline an appropriate program tailored to the student's interests to enable fulfillment of the degree requirements.

A student who enters the PhD program and already holds the MS degree in chemistry must select a major professor during the first semester in residence, or upon completion of the diagnostic examinations.

In the event that a student changes major professors, a new advisory committee must be appointed.

7. *Admission to Candidacy*—In order to apply for candidacy, the student must have an advisory committee, must have taken the Graduate Record Examinations, and must have successfully completed the departmental comprehensive examination requirement. The written and oral portions of the comprehensive examinations (the oral exam replaces the research prospectus) collectively satisfy the comprehensive examination requirement of the Graduate School. The test scores, transcripts, and other pertinent data will be examined by the student's advisory committee, and their recommendation, with the approval of the department chair, will be forwarded to the Dean of the Graduate School.
8. *Doctoral Research and Dissertation*—Registration for nine semester hours of CHEM 9000 and CHEM 8001 combined is required of all doctoral candidates before the dissertation will be considered.
9. *Final Examination*—A final oral examination on the student's dissertation and related material will be administered by the student's advisory committee after completion of all course requirements and the dissertation. This examination will be held two weeks or more after the student has distributed copies of the dissertation to the members of the advisory committee; which must be done at least five weeks before the end of the semester in which the student expects to graduate. If the final oral examination is unsatisfactory, it must be repeated within one year. It may not be repeated more than once.
10. *Retention*—A student pursuing the doctoral degree program may be terminated for any of the following reasons:
 - a. Failure to maintain a grade point average of 3.0 or above. A student who has a cumulative grade point average below 3.0 will be placed on probation. Continuation in graduate school must be approved by the Dean of the Graduate School. Any person whose continuation is denied may appeal the decision to the University Council for Graduate Studies and Research.
 - b. Accumulation of more than six hours of graduate credit with grades of C or below.
 - c. Failure to accumulate the requisite number of points on the departmental comprehensive examinations. (See Section 4).
 - d. Failure to satisfy the advisory committee on the final oral examination. (See Section 9).

CHEMISTRY (CHEM)

6001. Environmental Chemistry. (3). Chemical phenomena occurring in soil, atmospheric, and aquatic environments; consideration of natural resources and environment. *Three lecture hours per week.* PREREQUISITE: CHEM 3311.

6101. Inorganic Chemistry Laboratory. (1). Experimental techniques of inorganic synthesis and physical methods for characterization of inorganic and organometallic compounds. *Three laboratory hours per week.* PREREQUISITE or COREQUISITE: CHEM 6111.

6111. Inorganic Chemistry. (3). Theoretical and applied inorganic chemistry, stressing the relationship of structure and bonding to the properties of elements and compounds; topics include introductory molecular orbital theory, coordination compounds and organometallics, ligand field theory, nonaqueous solvent systems, and reaction mechanisms. *Three lecture hours per week.* PREREQUISITE: CHEM 3412, or permission of the instructor

6180-99. Special Topics in Inorganic Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6201. Instrumentation Laboratory. (2). Laboratory exercises applying topics introduced in CHEM 6211: measurement of signals, enhancement of signal-to-noise, fundamentals of electronics, applications of solid-state electronic devices, and the role of computers in data acquisition. *Six laboratory hours per week.* COREQUISITE: CHEM 6211.

6211. Advanced Instrumental Analysis. (3) Study of topics in analytical instrumental analysis, including atomic spectroscopy, x-ray spectroscopy, UV-visible, luminescence, infrared, Raman, and nuclear magnetic resonance spectroscopy. *Three lecture hours per week.* PREREQUISITE: CHEM 3211 and CHEM 3412.

6280-99. Special Topics in Analytical Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6311. Intermediate Organic Chemistry. (3). Further study of physical organic chemistry, spectrometric methods of identification of organic compounds, modern methods for organic synthesis, and natural products chemistry. PREREQUISITE: CHEM 3312 or permission of instructor.

6315. Organic Medicinal Chemistry. (3). Introduction to principles of medicinal chemistry; structure, synthesis, and biochemical mechanism of action of major drug classes. *Three lecture hours per week.* PREREQUISITE: CHEM 3312.

6380-99. Special Topics in Organic Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6411. Advanced Physical Chemistry. (3). Advanced topics in physical chemistry, including statistical mechanics and thermodynamics plus selected topics in kinetic theory of gases, condensed phases, and nonequilibrium processes. PREREQUISITE: CHEM 3412 or permission of instructor.

6415. Computational Chemistry. (3). Application of computers to problems in organic and inorganic chemistry; use of quantum chemistry codes to solve problems related to electronic, molecular, and vibrational structure.

6480-99. Special Topics in Physical Chemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6501. Biochemistry Laboratory. (2). (Same as MMCS 6503). Investigation of physical and chemical properties of compounds of biological interest by common laboratory techniques; assay of enzymes and enzyme kinetics stressed. *Three laboratory hours per week.* PREREQUISITES: CHEM 3302 or 3303 and CHEM 3312. PREREQUISITE OR COREQUISITE: CHEM 6511.

6502. Biochemistry Laboratory II. (2). (Same as MMCS 6504). Biochemical laboratory techniques; emphasis on fractionating biological samples and measuring metabolic activity. *Three laboratory hours per week.* PREREQUISITE: CHEM 6511.

6511. Biochemistry I. (3). (Same as MMCS 6511). Chemistry of amino acids and proteins as related to their properties in biochemical systems; enzymology, including kinetics and conformation studies; co-enzymes and their functions; the chemistry of carbohydrates, lipids, and nucleotides. PREREQUISITE: CHEM 3312.

6512. Biochemistry II. (3). (Same as MMCS 6512). A continuation of CHEM 6511. Metabolism of carbohydrates, amino acids, and nucleotides; biochemistry of DNA and RNA, including their relationship to the biosynthesis of proteins; metabolic control. PREREQUISITE: CHEM 6511.

6580-99. Special Topics in Biochemistry. (1-3). Topics are varied and announced in *Schedule of Classes*.

6604. Instrumental Methods. (3). Analytical instrumental techniques including molecular spectroscopy, chromatography, atomic spectroscopy, and electrochemical analysis. *One lecture, six laboratory hours per week.* PREREQUISITES: CHEM 3201, 3211, 3312 or permission of instructor.

6911. Chemical Literature and Seminar. (1). Use of literature, writing of technical reports, and oral presentation of investigative reports. *One lecture hour per week.* PREREQUISITE: Permission of instructor.

7001-8001. Directed Research. (1-10). An original investigation undertaken with the supervision of a member of the graduate staff to be the basis of a contribution to the chemical literature. May be repeated for a maximum of 30 credit hours.

7100-09-8100-09. Special Topics in Inorganic Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including equilibrium, titrimetric, electroanalytical, and spectral methods, separation and radio-chemical techniques, microanalysis, statistics and data analysis, and electrode kinetics). May be repeated for a maximum of 12 credit hours. PREREQUISITE: Permission of instructor.

7111-8111. Systematic Inorganic Chemistry. (3). Survey of inorganic chemistry, including electronic structure, bonding, stereochemistry, symmetry, and the physical and chemical properties of the elements and their compounds. PREREQUISITE: CHEM 6111 or permission of instructor.

7112-8112. Structural Inorganic Chemistry. (3). Study of physical methods used to determine structure, and applications of group theory to chemical problems. PREREQUISITE: CHEM 6111 or permission of instructor.

7200-09-8200-09. Special Topics in Analytical Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including equilibrium, titrimetric, electroanalytical, and spectral methods, separation and radio-chemical techniques, microanalysis, statistics and data analysis, and electrode kinetics). May be repeated for a maximum of 12 credit hours. PREREQUISITE: Permission of instructor.

7211-8211. Advanced Analytical Chemistry I. (3). Advanced treatment of topics in atomic and molecular spectroscopy, mass spectrometry, and surface analysis techniques. PREREQUISITE: CHEM 6211 or permission of instructor.

7212-8212. Advanced Analytical Chemistry II. (3). Advanced treatment of topics in electrochemical methods and separation techniques. PREREQUISITE: CHEM 6211 or permission of instructor.

7300-09-8300-8309. Special Topics in Organic Chemistry. (1-3). Lecture and conferences covering selected areas of current interest (including heterocyclic chemistry, organometallic compounds, organosulfur compounds, alkaloids, steroids, terpenes, photochemistry, biosynthesis, stereochemistry, carbohydrates, new synthetic methods, high polymers, and advanced physicalorganic chemistry). May be repeated for a maximum of 12 credit hours. PREREQUISITE: Permission of instructor.

7311-8311. Advanced Organic Chemistry. (3). Physical approach to organic reaction mechanisms; reactive intermediates, aromaticity, and pericyclic reactions. Introduction to advanced spectroscopic techniques and synthetic philosophy. PREREQUISITE: CHEM 6311 or permission of instructor.

7312-8312. Synthetic Organic Chemistry. (3). Principles of synthesis of complex organic molecules. PREREQUISITE: CHEM 6311 or permission of instructor.

7314-8314. Heterocyclic Chemistry. (3). Reactions, synthesis, uses, and physical properties of heterocyclic compounds.

7400-09-8400-09. Special Topics in Physical Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including non-aqueous solutions, surface chemistry, x-ray crystallography, theoretical spectroscopy, nuclear chemistry, molecular structure of macromolecules, colloid chemistry, statistical thermodynamics, esr, and nmr). May be repeated for a maximum of 12 credit hours. PREREQUISITE: Permission of instructor.

7411-8411. Electronic Structure and Symmetry. (3). Basic quantum chemistry with applications to simple systems; group theory and its applications; molecular orbital theory including Huckel, SCF-LCAO-MO, and Qualitative MO methods. PREREQUISITE: CHEM 6411 or permission of instructor.

7413-8413. Molecular Spectroscopy. (3). Spectroscopy of molecular systems including infrared, UV, visible, microwave, Raman, NMR, and ESR; theory for obtaining molecular information from different

types of spectroscopy. **PREREQUISITE:** CHEM 6411 or permission of instructor.

7414-8414. Advanced Quantum Chemistry. (3). Advanced treatment of topics in quantum chemistry with emphasis on electronic structure theories.

7500-09-8500-09. Special Topics In Biochemistry. (1-3). Lectures and conferences covering selected areas of current interest (including enzymology, protein and nucleic acid chemistry, physical chemistry of biochemical macromolecules, lipid, carbohydrate, and amino acid metabolism, biochemical energetics, and metabolic regulation). May be repeated for a maximum of 12 credit hours. **PREREQUISITE:** Permission of instructor.

†7600. Teaching Chemistry Laboratories. (2). Laboratory instruction emphasizing communication skills, laboratory conduct and safety, and evaluation of performance. *Two laboratory hours per week.*

7711-8711. Approximate Chemical Modeling Methods. (3). Development of approximate classical and quantum mechanical techniques for modeling chemical systems, molecular mechanics, semiempirical quantum mechanics. **PREREQUISITE:** CHEM 7411 or permission of instructor.

7712-8712. Computational Chemistry Programming. (3). Programming for chemical applications in chemistry, parallel programming methods, computational chemistry on high-performance computers. **PREREQUISITE:** CHEM 7411 or permission of instructor.

7713-8713. Advanced Solid State Physics and Chemistry. (3). Quantum mechanical treatment of electronic and vibrational states of metals, semiconductors and insulators, transport phenomena, superconductivity, physics of defects in solids. **PREREQUISITE:** CHEM 7411 or permission of instructor.

†7910-8910. Special Problems in Chemistry. (1-12). Individual investigation and report under the guidance of the student's major advisor.

†7911. Presentation. (1). Preparation and presentation of a short talk or lecture based on a laboratory or library project. Topic chosen in consultation with advisor.

†7913-8913. Chemistry Seminar. (1). Formal meetings, presentation, and discussion of current topics of interest; students, faculty, and visiting scientists participate. Required of all regularly enrolled graduate students. A maximum of 4 credit hours from a combination of CHEM 6911, 7911, 8911, and 7-8913 may be counted toward the degree.

†7996. Thesis. (1-6). An original investigation undertaken with the supervision of a member of the graduate staff. The investigation will be the basis of a thesis.

8500-09. Special Topics In Biochemistry. (1-3). Lectures and conferences covering selected areas of current interest (including enzymology, protein and nucleic acid chemistry, physical chemistry of biochemical macromolecules, lipid, carbohydrate, and amino acid metabolism, biochemical energetics, and metabolic regulation). May be repeated for a for a maximum of 12 credit hours. **PREREQUISITE:** Permission of instructor.

8700-09. Special Topics in Computational Chemistry. (1-3). Lectures and conferences covering selected areas of current interest (including artificial intelligence methods, molecular computing, semi-empirical quantum mechanics, combinatorial chemistry, computer-aided drug design, analysis of chemical databases, correlated methods, chemometrics, and parallel computing). May be repeated for a maximum of 12 credit hours. **PREREQUISITE:** Permission of instructor.

†8911. Advanced Presentation. (1). Preparation and presentation of one-hour lecture as regularly scheduled department seminar. Topic chosen in consultation with advisor.

†9000. Dissertation. (1-10). An original investigation undertaken with the supervision of a member of the graduate staff to be the basis of a doctoral dissertation and a contribution to the chemical literature. May be repeated for a maximum of 30 credit hours.

†Grades of S, U, or IP will be given

DIVISION OF CITY AND REGIONAL PLANNING, School of Urban Affairs and Public Policy

Room 226, Johnson Hall
(901) 678-2161

GENE PEARSON, AICP,
Director and Coordinator of Graduate Studies

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MEMBERS

REZA BANAI, *Professor*
PhD (1983), The University of Pennsylvania [2002]
HSIANG-TE KUNG, *Professor*
PhD (1980), The University of Tennessee-Knoxville [2004]

ASSOCIATE MEMBERS

LUCHY BURRELL, *Associate Professor*
MP (1970), University of Puerto Rico [2004]
GENE PEARSON, *Associate Professor*
MURP (1971), University of Mississippi [2004]
SUSAN ROAKES, *Associate Professor*
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ADJUNCT MEMBERS

THOMAS FOX,
PhD (1997), Vanderbilt University [2001]
AMY COHEN,
MS (1981), Columbia University [2004]

AFFILIATE MEMBERS

TONY POTEET,
MCRP (1995), The University of Memphis [2004]
STEVE REDDING,
MBA (1979), Mississippi State University [2004]

I. The Division of City and Regional Planning offers the Master's in City and Regional Planning (MCRP) degree. Planning uses a multidisciplinary approach to solve urban and regional problems. As such, planning is concerned with the spatial arrangement and interaction of human activity systems in urbanized areas and enables the arrangement of facilities and programs in an optimal and comprehensive way. As a professional practice, planning is concerned with guiding the growth and development of cities and regions toward desired objectives. Planning increases the effectiveness of public and private decision-making by giving careful consideration to goal formulation, the collection and organization of information and knowledge, and the design of policies and programs. The curriculum is intended to provide the basic knowledge and skills in theory, techniques, methods, and practice. The program is a full member of the Association of Collegiate Schools of Planning, and its degree is accredited by the Planning Accreditation Board.

II. MCRP Degree Program

A. Program Admission

Applicants must satisfy admission standards of the Graduate School and receive favorable endorsement from the planning faculty. Admission will be based on applicable test scores (GRE or MAT); undergraduate grade point average; previous education and/or experience; and ability to articulate career and education objectives.

B. Program Prerequisite

Students are accepted from all undergraduate disciplines and professional areas; however, the department determines if students must do remedial work. Some credit may be granted by the department for remedial work if obtained at the graduate level after entering the program.

C. Program Requirements

The student is required to complete a minimum of 48 semester hours. Thirty (30) hours are taken in the core curriculum and 15 hours are electives that lead to a 3-hour Capstone Project. The fifteen (15) hours of electives allow the student to extend basic knowledge gained in the core curriculum and can include such subjects as economic development planning, urban design, land use and transportation planning, planning information systems, housing and community development planning, planning law, and environmental planning.

The 3-hour Capstone Project, submitted as a written report and orally defended, is required of all majors as a terminal experience designed to demonstrate a student's mastery of planning process and substance. The comprehensive examination must be successfully completed at the end of the semester in which the student expects to graduate.

D. Transfer of Credits

The Director may recommend to the Dean of the Graduate School credit for planning course-work successfully completed at other institutions but not to exceed 12 semester hours. For those students formerly enrolled in graduate planning programs accredited by the Planning Accreditation Board, a maximum of 24 hours in planning course-work may be approved. Credit previously earned at another institution must be presented for evaluation not later than the end of the student's second semester of enrollment.

CITY AND REGIONAL PLANNING (PLAN)

CORE CURRICULUM

6521. Quantitative Methods. (3). (Same as GEOG 6521). An introduction to quantitative methods in spatial analysis.

7000. Introduction to Planning. (3). Planning trends in United States and abroad, including land use planning, developmental planning, social planning, transportation planning, community facilities planning, and planning as a governmental activity at the local, state, and federal levels.

7002. City Planning Principles and Theory. (3). The fundamental principles and theory of urban and regional planning with emphasis on comprehensive planning processes and appropriate theoretical foundations.

7004. Land Use Controls. (3). Methods of regulating land use, including zoning, subdivision controls, and growth management techniques; legal framework for planning, including enabling legislation, local ordinances, and significant judicial decisions.

7006. Comprehensive Planning Studio. (3). Individual and group practice in collection, analysis, and presentation of field data on selected planning problems.

7007. Special Projects Studio. (3). Individual and group planning for development of major public and private projects.

7008. Site Planning. (3). Principles and methods of preparing site plan for development project, including techniques of determining suitability of site resources and compatibility of land uses, site impact analysis, and site plan review procedures.

7011. Financing Community Development. (3). Introduction to and principles of municipal finance with emphasis on preparation of capital improvements program; methods of forecasting public revenues and expenditures, project selection methods, and review of financing mechanisms.

7012. Methodology and Techniques in Planning. (3). Professional practice methodology used in assessment of existing socioeconomic conditions of communities, trend analysis, and forecasts of future population and employment for purpose of developing comprehensive plan.

7202. Land Use Planning. (3). Theory and practice of land use planning, with emphasis on methods of land use analysis and economic and social basis for land use decisions.

ELECTIVES

6201. Urbanization and Environment. (3). (Same as GEOG 6201). A study of the ways humans have changed the natural environment by urbanization and how physical features and processes influence the development and function of cities.

6231. Water Resources. (3). (Same as GEOG 6231). Study of hydrologic processes and their application to needs of cities, industry, agriculture, and recreation.

6443. Transportation Planning. (3). (Same as GEOG 6443). Planning for various transportation modes and networks and the impact they have on urban land use and contemporary development problems.

6502. Computer Mapping. (3). (Same as GEOG 6502). Instruction in use of computer mapping programs as effective techniques for visual presentation of a wide variety of data. *Two lecture, two laboratory hours per week.* PREREQUISITE: BASIC, FORTRAN, or other computer language.

6515. Geographic Information Science. (3). (Same as GEOG 6515). Introduction to the basic concepts, components, and functions of Geographic Information Science using ARC/INFO GIS; topics include concepts and structure of spatial data, database planning and design, data quality control, automating spatial data, attribute data management, spatial manipulation, and spatial analysis techniques. PREREQUISITE: GEOG 1010 or 1020 or 1301 or 3430 or 4201 or permission of instructor.

7101. Regional Planning. (3). Area and region delineation, regional planning organization, the various levels of planning, the functions and problems of regional plan preparation, and plan implementation.

7201. Community Facilities Planning. (3). Planning the location and design of community facilities in the light of changing concepts of public service and community organization.

7204. Urban Revitalization Planning. (3). Changing urban land uses, first in areas that must improve or rebuild obsolete patterns, functions, and forms; and second in areas with acceptable uses, structures, and institutions, which in the interest and welfare of all the people must have additional space for growth and expansion.

7205. Seminar in Urban Design. (3). History and theory of urban form and implications for the design of cities; survey of urban design techniques.

7206. Housing. (3). Survey of housing market characteristics, financing, development, preservation, and redevelopment from both public and private perspectives.

7302. Environmental Analysis Seminar. (3). (Same as GEOG 7201). Analytical and qualitative critique of the physical environment with emphasis on environmental quality, including air and water quality standards, soil erosion, solid waste management, and nuisance control.

7504. Seminar in Geographic Information Systems. (3). (Same as GEOG 7504). Implementation and management of GIS technology; design, automation, and applications to land use and natural resources inventories.

7701. Research Problems. (1-3). Independent investigation directed toward research problems in city and regional planning. May be repeated for a maximum of 3 hours credit.

7708. Planning Practice. (3). Practical skills in operating a planning office in both public and private sectors. PREREQUISITE: Approved planning experience.

†7890. Planning Internship. (1). Experiential learning assignment to be achieved via an approved work assignment with a public or private planning organization or a member of the planning faculty. NOTE: Does not count toward degree requirements.

†7896. Capstone Project. (1,2,3). Preparation of a research paper that exhibits mastery of process and substantive area of planning.

†Grades of S, U, or IP will be given.

DEPARTMENT OF CRIMINOLOGY AND CRIMINAL JUSTICE, School of Urban Affairs and Public Policy

Room 405, Mitchell Hall

W. RICHARD JANIKOWSKI, JD
Chair

LYNETTE FEDER, PhD
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MEMBERS

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ASSOCIATE MEMBER

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ADJUNCT MEMBERS

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WILLIAM E. POWELL,
MPA (1986), Memphis State University [2002]

- I. The graduate program of the Department of Criminology and Criminal Justice seeks to serve students who are working or who want to work in the criminal justice system as well as those who wish to conduct research and teach in this area. A significant focus of the graduate program is on developing partnerships between researchers, policymakers, program developers, agency personnel, and other community groups. Through these partnerships, faculty conduct basic and applied research, program development, and evaluation in the many different facets of crime, criminology, and justice.

The graduate program provides students with a solid foundation of knowledge about criminology, victimology, and the criminal justice system. The required course work emphasizes the study of research methods and statistics, providing students with the skills necessary for conducting and evaluating research. Graduate students have the opportunity to learn in both classroom and community settings and to work closely with faculty in all facets of research.

The department is currently revising its program requirements. Please contact the department directly at the above e-mail address for further information.

II. MA Degree Program

A. Program Admission

Admission to the program is competitive and is not automatic upon meeting minimum departmental admission requirements. Students are selected from the pool of qualified applicants for the program, and the number of students admitted to the program yearly depends on availability of financial aid and adequate faculty supervision. Applicants admitted to the program typically have at least a grade point average of 3.0 on a 4.0 scale and scores at or above the 50th percentile on both the verbal and the qualitative sections of the GRE. All application material should be received by June 1 for a candidate to be considered for the fall semester and November 1 for the spring semester. Admission for the summer session is not considered.

To be considered for admission, the applicant must:

1. Possess a baccalaureate degree from an accredited college or university.
2. Have earned a grade point average of at least 3.00 on a scale of 4.00 and achieved an acceptable score on the GRE. The admissions committee reserves the right to make exceptions for candidates presenting special circumstances.
3. Submit a letter of purpose for graduate study to the Coordinator of Graduate Studies in Criminology and Criminal Justice that is no more than one typed single-spaced page in length.
4. Submit two letters of recommendation.

B. Program Requirements

1. A total of 30 semester hours of graduate work plus the completion and defense of a thesis, or 33 semester hours of graduate work without a thesis with courses taken in both Tool and Foundation Components.
2. Satisfactory completion of the following core curriculum:
Tool Component: (9 credit hours)
CJUS 7128 Research Methods in Criminal Justice
CJUS 7129 Advanced Statistical Methods in Criminal Justice
CJUS 7131 Research Practicum in Criminal Justice
Foundation Component: (12 credit hours)
CJUS 7100 Criminal Justice Administration: Programs and Policies
CJUS 7161 Intervention Strategies: Changing Organizations and Communities
CJUS 7541 Criminological Theory: Causes of Crime
CJUS 7542 Victimology: Causation, Prevention, and Restorative Justice
3. Students not previously having successfully completed a statistics course must register for a statistics course from a list approved by the department prior to registering for CJUS 7129, Advanced Statistical Methods in Criminal Justice.
4. A minimum of 27 hours of coursework at the 7000 level, including thesis hours.
5. Up to six hours of coursework may be taken outside the department with prior approval of the graduate coordinator.
6. Students will be allowed no more than six hours of credit toward the degree in non-classroom courses such as internships, individual directed studies, and reading courses.
7. Satisfactory performance on a comprehensive examination covering the major areas of criminology and criminal justice.

C. Retention Requirements

1. All students are required to maintain a GPA of at least 3.00. Should the student's GPA fall below that mark, a period of one semester will be allowed to correct the deficiency. At the discretion of the chair, the coordinator of graduate studies, and the Dean of the Graduate School, this period may be extended one additional semester.
2. Any student receiving a grade of D or F in a required course in the core curriculum will be terminated from the program.

CRIMINOLOGY AND CRIMINAL JUSTICE (CJUS)

6010-19. Special Topics in Criminal Justice. (1-3). Topics are varied and announced in *Schedule of Classes*.

6160. Forensic Sciences. (3). Forensic specialties will be discussed in terms of their history, the scientific rationale upon which each is based, and the problems that may compromise accuracy or validity; introduction to field techniques and analysis of evidence.

6180. Corporate and White-Collar Crime. (3). Organizational and occupational crime in comparison to other types of criminality; emphasis on causes, frequency, control, and social impact.

6190. Terrorism: Social and Legal Perspectives. (3). Theoretical and ideological aspects of practice of and response to international and domestic terrorism; terrorism as crime from political, social, economic, historical, and legal perspectives.

6520. Substantive Criminal Law. (3). Substance of the crime, including common-law sources and basic principles, types of offenses, responsibility, justification and excuse, and related areas.

6531. Issues in Constitutional Rights. (3). Issues in constitutional rights related to criminal defendants, including the exclusionary rule, application of First Amendment to criminal law, due process, and equal protection; examination of civil and criminal remedies for protecting and vindicating constitutional rights.

6533. Juvenile Delinquency: Theory and Process. (3). Theories of juvenile delinquency, gang activities, and status offenses; history, organization, programs, and procedures of agencies charged with control and prevention of juvenile delinquency including police, juvenile units, juvenile courts, and juvenile correctional agencies.

7100-8100. Criminal Justice Administration: Programs and Policies. (3). Examination of the structure and interrelationship of the major components of the criminal justice system, with an emphasis on the impact of social and political forces on roles and functions of criminal justice agencies.

†7110-8110. Individual Directed Study. (1-4). Individual directed research/readings in special areas of interest in the field of criminal justice. May be repeated for a maximum of 4 credit hours. **PREREQUISITE:** Permission of Coordinator of Graduate Studies.

7128-8128. Research Methods in Criminal Justice. (3). Principles of social science research as applied to the study of the criminal justice system. Sampling techniques and research strategies. Emphasis on the development of research skills enabling the student to conduct an independent research project.

7129. Advanced Statistical Methods in Criminal Justice. (3) Introduction to intermediate and advanced topics related to statistical analysis of data from the National Archive of Criminal Justice Data; emphasis on Bureau of Justice Statistics data describing principal activities of the system and on complex data sets or those showing special promise for informing theoretical issues. **PREREQUISITE:** Permission of the Graduate Coordinator.

7130. Crime Analysis and Criminal Behavior. (3). In-depth study of "normal crimes"; the analysis of the characteristics of the criminal, the victim, and the setting for specified offenses; the typical demographic and ecological elements of each type of crime with the purpose of providing a framework for analysis and comparison.

7131. Research Practicum in Criminal Justice. (3). The student will be exposed to development, implementation, and/or analysis of research methodology. Each student will work under direction of one faculty member on an experimental, theoretical or applied research study. May be repeated for a maximum of 6 credit hours. **PREREQUISITE:** CJUS 7128.

†7140. Graduate Colloquium. (3). Presentations of scholarly activity and examination of classical and contemporary issues in criminology and criminal justice. Required of all graduate assistants. **Prerequisite:** Appointment as a graduate assistant in Criminology and Criminal Justice.

†7141-8141. Reading for Comprehensives. (1-6). Arranged on an individual basis for Criminology and Criminal Justice graduate students only and directed by faculty. **Prerequisites:** Student must have completed required course work or be in the last semester of required course work.

†7150-8150. Internship in Criminal Justice (3-6). Experience in a criminal justice setting through assignment to an enforcement, judicial, or correctional agency under joint supervision of agency officials and university faculty. **PREREQUISITE:** Permission of Coordinator of Graduate Studies.

7160. Seminar in Criminal Justice Administration. (3). Theories of organization with emphasis on structures, principles, techniques, and processes of criminal justice agencies; factors affecting behavior within such organizations; motivation, leadership, group dynamics, conflict management, unionization, selection, training, performance evaluation, organizational change, and political factors in public agency operation.

7161. Intervention Strategies: Changing Organizations and Communities. (3). Development of intervention, prevention, and suppression strategies by criminal justice agencies; role of social and political institutions and forces on design and implementation of strategies; emphasis on how design and implementation impact communities and residents.

7190-99. Special Topics in Criminal Justice. (3). Systematic and comprehensive examination of important and timely issues and development in the field of criminal justice. May be repeated for a maximum of 6 hours.

7510. Law and Society. (3). Examination of law as a system of control and as a mechanism for the resolution of conflict. Relationship of law to political, economic, and social systems critically analyzed; the development of the legal profession.

7523. The Concept of Criminal Law. (3). Social foundation and principles on which our system of criminal law is based.

7541. Criminological Theory: Causes of Crime. (3). An overview of historical, sociological, biological, and economic theories of crime causation; particular attention will be paid to critically analyzing each of the theories presented in terms of research findings.

7542. Victimology: Causation, Prevention, and Intervention. (3). An overview of the study of crime victims and the process, etiology, and consequences of criminal victimization, with focus on the types of crime victims, theories of victimization, and the victim's treatment within the criminal justice system using national data as well as recent research findings.

7570-8570. Legal Issues in Criminal Justice Administration. (3). Relationship between legal and constitutional issues and concepts of ordered liberty and administration of justice; application of legal methodology to analysis of current issues in constitutional rights and remedies.

†7996. Thesis. (1-6).

†Grades of S, U, or IP will be given

ENGLISH

Room 467, Patterson Hall
(901) 678-2651

STEPHEN TABACHNICK, PhD
Chair

THERON BRITT, PhD
Coordinator of Graduate Studies
(901) 678-3602

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MEMBERS

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- WILLIAM H. O'DONNELL, *Professor*
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PhD (1969), The University of California, Los Angeles [2003]
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- EMILY A. THRUSH, *Associate Professor*
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ASSOCIATE MEMBERS

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PhD (1972), The University of Nebraska [2003]
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BA (1985), University of North Carolina, Chapel Hill [2006]
- LOEL S. KIM, *Assistant Professor*
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- PHILIP KOBYLARZ, *Instructor*
MFA (1993) The University of Iowa Writers' Workshop [2002]
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PhD (1999), University of California, Berkeley [2006]
- VERNER D. MITCHELL, *Assistant Professor*
PhD (1995), Rutgers University [2005]
- ANITA PANDEY, *Assistant Professor*
PhD (1997), The University of Illinois, Champagne-Urbana [2004]
- I. The Department of English offers programs of study leading to the Master of Arts degree, the Master of Fine Arts degree, and the Doctor of Philosophy degree. Entering students will consult with a departmental advisor to plan their course of study. Students in the MA program will choose one concentration from the four offered: Language and Linguistics, Literature, Writing (Creative Writing or Professional Writing), or English as a Second Language. A new concentration in Composition Studies has recently been approved. Please contact the department for details. Students in the PhD program will choose one of four concentrations: Composition Studies, Professional Writing, Applied Linguistics, or Textual Studies.
- II. MA in English Degree Program
- A. *Admission*
1. An overall minimum grade point average of 2.50 at the undergraduate level.
 2. A satisfactory score on the Miller Analogies Test or the Graduate Record Examination.
 3. Transcripts showing any graduate work should also be sent to the Coordinator of Graduate Studies, Department of English.
 4. Those students wishing admittance into the Creative Writing concentration must submit a portfolio of original work (10 poems, 2 short stories, or 25 pages of creative nonfiction) to the Coordinator of Creative Writing.
- B. *Program Prerequisites*
- An undergraduate degree with a major in English. A student who does not have an undergraduate major in English or appropriate background may be required to complete a maximum of 12 upper division hours in English with a grade of B or higher in each course.
- C. *Program Requirements*
1. A total of thirty (30) semester hours of course work plus a 3-hour thesis, or a total of thirty-three (33) semester hours of course work plus a comprehensive examination for the student who elects not to write a thesis.
 2. Two graduate courses (six semester hours) in literature, excluding ENGL 7100.

For those in Creative Writing, an additional graduate modern or contemporary literature course (3 semester hours) chosen from the following is required: 7029-39 (where applicable), 7291, 7292, 7293, 7391, 7392, 7393, 7441, 7442, 7462, 7464, 7466, 7702.

3. Students must complete the following minimum course work, beyond the requirement in 2, in at least one of these concentrations: Composition Studies 12 hours; Language and Linguistics 12 hours from ENGL 7501-7511-7516, and 7590; Writing (Creative or Professional) 12 hours, Literature 15 hours, including ENGL 7000 (excluding ENGL 7100); English as a Second Language 18 hours.

The Writing concentration (Creative or Professional) requires a 3-hour thesis.

Professional Writing students will complete their twelve hours as follows: ENGL 7806 and 7809, and two courses selected from the following: 7805, 7807, 7808, and 7810.

Courses numbered 7004, 7005, 7006, 7812, and 7813 require approval of the Chair of the Department and Coordinator of Graduate Studies in order to be applied toward any concentration.

4. Oral comprehensive examination for students who write a thesis, and a written comprehensive examination for those who do not. Students should contact the English Graduate Office for examination format and dates.
5. Reading knowledge of a foreign language for students in ESL and Linguistics. Proficiency may be demonstrated in a variety of ways (inquire in English Graduate Office for options). Students intending to pursue a PhD are advised to develop a reading competency in at least one of the following: French, German, Latin, or Greek.
6. Thesis (ENGL 7996) Optional, except for the concentration in Writing (Creative or Professional).
7. An average of 3.00 in all graduate English courses.
8. Each graduate teaching assistant in the Department of English must enroll in English 7003-8003 before or concurrent with first teaching assignment.

III. MFA in Creative Writing Degree Program

The Master of Fine Arts in Creative Writing provides studies in poetry, fiction, and nonfiction. In addition to writing workshops, students take courses in literature and in the theory of writing, including English language and linguistics. A book-length thesis of publishable quality is required; it will be directed by a member of the MFA faculty. The MFA requires 48 graduate semester hours, with a 3.00 grade point average in all graduate courses.

A. Admission

1. An overall minimum grade point average of 2.50 at the undergraduate level.
2. A portfolio of published or unpublished writing samples in the applicant's chosen genre (at least 20-25 pages of fiction or ten poems, or 25 pages of nonfiction), demonstrating a potential for development to a professional standard of writing. The writing sample will be evaluated by a committee of MFA faculty. The committee will recommend admission of those applicants with the highest demonstrated talent.
3. Baccalaureate degree in English or if baccalaureate is in another field, twelve (12) semester hours in program prerequisites.
4. Miller Analogies Test (minimum score: 40) or Graduate Record General Examination (minimum verbal score: 450).
Deadlines: February 15 for the following fall semester admission and October 15 for following spring semester.

B. Program Prerequisites

A minimum of twelve (12) semester hours in upper division literature courses with a minimum grade point average of 2.5 in these courses.

C. MA Credit

Any applicant who holds an MA degree in English may apply up to a maximum of twenty-four (24) semester hours in English earned for that degree toward the MFA degree, with the approval of the graduate coordinator. A student's advisor will insure that the combination of MA credits and courses taken in the program has appropriate breadth. Credit previously earned at another institution must be presented for evaluation not later than the end of the student's second semester of enrollment.

D. Core Requirements

1. Writing Workshops and Forms Courses - A total of 18 semester hours required: 12 hours of 7602 and 7603, at least 9 hours of which must be in chosen genre; one forms class (7470, 7471 or 7472) in chosen genre, and one cross-genre course, either forms 7470, 7471, or 7472, or a workshop (7601, 7602 or 7603).
2. Literature - Eighteen (18) semester hours, elected from ENGL 7000, 7020-39 (literature or criticism topics and approval of the Director of Creative Writing and the Coordinator of Graduate Studies), 7211, 7230, 7232, 7233, 7242, 7244, 7254, 7256, 7264, 7265, 7266, 7276, 7278, 7280, 7291, 7292, 7293, 7323, 7324, 7391, 7392, 7393, 7411, 7412, 7441, 7442, 7451, 7452, 7462, 7464, 7466, 7473, 7474, 7701, 7702.
3. Theory of Writing and English Language / Linguistics - Six (6) semester hours selected from ENGL 7020-29 (theory of writing and English Language / Linguistics topics), 7003, 7475, 7501, 7511 through 7517, 7531 through 7537, 7590, 7801, 7802, 7803, 7805, and 7810. The student's advisor will ensure that the selections have appropriate breadth.
4. Thesis (ENGL 7996), six (6) semester hours.
5. Oral review of thesis.

IV. PhD in English: Writing and Language Studies Degree Program

The PhD in English is designed to prepare scholars in widely recognized fields of English, as well as to prepare advanced writing specialists in the fields of business and industry. The structure of the program provides for four related concentrations (Composition Studies, Professional Writing, Applied Linguistics, Textual Studies) that offer students the professional flexibility that comes with competencies acquired through preparation in a broadly integrative discipline.

A. Admission

The following are required for admission to the PhD program in English for all applicants, whether applying with a bachelor's or master's degree.

1. Fulfillment of University requirements for admission to the Graduate School.
2. Official transcript(s) sent to Graduate Admissions and to the Coordinator of Graduate Studies in English.
3. A minimum score of 600 generally is expected on the verbal portion of the GRE. In addition, international students for whom English is not their first language must submit a minimum score of 575 on paper (or computer equivalent) on the TOEFL exam.
4. A bachelor's or master's degree from an accredited college or university in the United States, usually with a major or a strong minor in English, or the equivalent of one of these degrees in another country.
5. Minimum undergraduate and graduate grade point average of 3.00 is expected.
6. Evidence of competence in writing in English as evidenced by a statement of purpose and a sample of the applicant's best work.
7. Two letters of recommendation, preferably from college/university professors of English or comparable disciplines.
8. Program Admission: We normally evaluate applicants for the PhD program once each year in February for admission in the Fall semester. Although the Graduate Studies Committee may consider the application of a promising student at other times, February 15 is the deadline by which we must receive all the application materials of anyone who wishes to be considered for an assistantship for the following academic year.

B. Retention Requirements

Upon entering the PhD program, a student chooses an advisor in his or her concentration. The advisor will monitor the student's progress towards completion of the degree. Each semester, the Graduate Studies Committee will examine the academic progress of all students for retention in the program.

C. Graduation Requirements

1. General Requirements
 - a. A minimum of 72 hours of graduate credit beyond the bachelor's degree is required. At least 60 hours of credit must be equivalent to 7000-level coursework or higher.
 - b. Students entering the PhD program without a master's degree may count up to 33 hours of graduate credit toward the 72 hours needed for the PhD. Only graduate hours that were not used for a previous graduate degree and that do not exceed university time restrictions can be transferred. Credit previously earned at another institution must be presented for evaluation not later than the end of the student's second semester of enrollment.
 - c. Master's level courses will be examined on an individual basis for applicability to the program. Students with a master's degree must complete at least 39 hours of graduate coursework beyond that master's degree.
 - d. No more than 9 hours granted for dissertation work may be used to attain the required 72 hours for the PhD.
2. Residency Requirements

The student must complete two successive terms full-time (excluding summer sessions) to fulfill residency requirements.
3. Core Requirements

Students must take a core of 12 hours in literature; 6 hours in linguistics; 6 hours in composition studies or professional writing; and 3 hours in English Studies Colloquium.
4. Concentration Requirements (beyond Core Requirements)
 - a. Composition Studies: 18 hours in composition studies, plus 9 hours in applied linguistics, textual studies, and/or professional writing. Professional Writing: 18 hours in professional writing, plus 9 hours in applied linguistics, textual studies, and/or composition studies.
 - c. Applied Linguistics: 18 hours in linguistics or ESL, plus 9 hours in composition studies, professional writing, textual studies, and/or literature.
 - d. Textual Studies: 9 hours in theory/methodology, 12 hours in textual studies, and 6 hours in theories of language (any combination of linguistics, composition studies, professional writing, or other courses that the advisory committee approves).
5. Electives

Nine (9) hours approved by the advisory committee; six (6) may be taken outside the department.
6. Examination Requirements
 - a. Qualifying Examinations: Students entering without a master's degree in English or 33 hours of appropriate graduate work must take a qualifying examination after accumulating 30 hours of graduate work through graduate transfer credit and/or graduate courses

completed at The University of Memphis. Qualifying examinations are designed to ascertain that the range of knowledge is appropriate at this level. These written exams will be tailored to the individual student's course of study. Examinations are graded high pass, low pass, or fail. Students achieving a high pass on these examinations will be allowed to advance to doctoral-level study. Those who receive a low pass may complete the requirements for a master's degree. However, a student who receives a low pass or fails one or more sections of the qualifying examination will be given one opportunity to take a different exam.

- b. Comprehensive Examinations: After completing the rest of their required courses and before they begin writing their dissertations, students will take comprehensive examinations designed to test their range of knowledge in their concentration. The comprehensive examinations will consist of two parts: a four-hour written exam in the concentration and a two-hour oral exam addressing the integrative aspects of the candidate's program. Students passing these examinations will be allowed to register for dissertation credit.

7. Language Requirements

Students must demonstrate reading knowledge of two foreign languages or fluency in one foreign language.

8. Dissertation Requirements

The student is responsible for choosing an advisory committee composed of the graduate faculty best qualified to help him or her conduct research for the dissertation. If the student's research requires expertise in a discipline outside the Department of English, the student, in consultation with his or her advisory committee chair, may ask up to two faculty members outside the Department of English to be part of the five-member committee. When the student has passed the comprehensive examinations and has done extensive preliminary research, he or she must present and defend a research proposal before the advisory committee. That defense will be open to the entire academic community. The student must give a copy of the proposal to all committee members at least two weeks before the scheduled meeting. The advisory committee must approve the proposal before the student may proceed with the dissertation.

The dissertation committee will schedule a defense of the completed dissertation. Both the chair of the advisory committee and the candidate must ensure adequate consultation with members of the dissertation committee well in advance of the defense date.

ENGLISH (ENGL)

†6500. Language Skills for Internationals. (3).

6533. Issues and Techniques in English as a Foreign Language. (3). Skills, background, and approaches needed to teach English outside the United States.

†6590. International Teaching Assistants. (3).

6602. Advanced Composition. (3). Principles involved in writing clear expository prose. Emphasis on application of these principles; analysis of readings and of students' writing.

7000-8000. Methods and Contexts of Literary Scholarship. (3). Various approaches to literary scholarship and research methodology; introduction to professional standards, bibliographical methods, and procedures of scholarship and criticism.

7001-8001. Language and Composition. (3). Studies in the craft of composition, with focus upon sound editorial practice and the writing and analysis of the varieties of expository prose.

7003-8003. Theory and Practice in Teaching Composition. (3). Designed for graduate assistants teaching English 1101. Emphasis on the ways and techniques of teaching rudiments of English composition on college level. Required of and restricted to graduate teaching assistants.

†7004-8004. Internship for Graduate Teaching Assistants. (3). Supervision of and consultation with English teaching assistants. PREREQUISITES: ENGL 7003 or equivalent plus appointment as graduate teaching assistant in English.

†7005-8005. Reading for Comprehensives. (3). Arranged on an individual basis for English graduate students only. PREREQUISITE: Student must have completed required course work toward degree or be in the last semester of required course work.

†7006-8006. The English Profession. (3). Presentations relating to the profession of college teaching, including methods and means of research and publication in different fields of English.

†7007-8007. Teaching Skills for Graduate Assistants. (3). Overview and practical demonstrations of the art of teaching for graduate assistants. May be repeated for a maximum of 12 credit hours.

7020-49-8020-49. Special Topics in English. (3). Topics are announced in *Schedule of Classes*.

7100-8100. Independent Study. (1-3). Focuses on a selected topic dealing with language study or a literary form, theme, figure, or movement. Topic chosen by student and approved by student's advisor and Department Chair. Can be used only as an elective.

7211-8211. Medieval Literature. (3).

7230-8230. Chaucer. (3).

7232-8232. Shakespeare's Tragedies. (3).

7233-8233. Shakespeare's Comedies and Histories. (3).

7242-8242. English Renaissance Literature. (3).

7244-8244. Elizabethan and Jacobean Drama. (3).

7254-8254. English Literature of the Seventeenth Century. (3).

7256-8256. Milton. (3).

7264-8264. English Poetry and Prose, 1660-1800. (3).

7265-8265. Eighteenth Century British Novel. (3).

7266-8266. English Drama from 1660 to 1800. (3).

7276-8276. English Literature of the Romantic Period. (3).

7278-8278. Victorian Literature. (3).

7280-8280. Nineteenth Century British Novel. (3).

7291-8291. Modern British Novel. (3).

7292-8292. Modern British Poetry. (3).

7293-8293. Modern British Drama. (3).

7323-8323. American Literature to 1865. (3).

7324-8324. American Literature, 1865-1914. (3).

7391-8391. Modern American Novel. (3).

7392-8392. Modern American Poetry. (3).

7393-8393. Modern American Drama. (3).

7411-8411. European Literature to the Renaissance. (3).

7412-8412. European Literature since the Renaissance. (3).

7441-8441. European Fiction. (3). Movements and writers important to development of Continental fiction from late eighteenth century to present.

7442-8442. Modern European Drama. (3).

7451-8451. Women and Literature. (3). Literature and criticism by and about women.

7452-8452. Biography: Process and Text. (3).

7462-8462. Contemporary British and/or Commonwealth Literature. (3). Authors, works, genres, and literary styles in development of contemporary British and Commonwealth literatures.

7464-8464. Contemporary American Literature. (3). Authors, works, genres, and literary styles in development of contemporary American literature.

7466-8466. Contemporary World Literatures in Translation. (3). Contemporary non-English fiction in translation, primarily from non-Western European cultures; focus on major movements and writers.

7470-8470. Forms of Creative Nonfiction. (3). Creative nonfiction with attention to historical roots and contemporary theory and practice.

7471-8471. Forms of Fiction. (3). A study of how fiction works through analyzing the short story, the novella, and the novel with attention to historical developments.

7472-8472. Forms of Poetry. (3). A study of meters, forms, and types of poetry in English with attention to the principal traditions and critical ideas associated with the writing of verse in English.

7473-8473. Verbal/Visual Texts. (3). Repeatable up to 6 hours with change of topic.

7474-8474. Cultural Texts. (3). Repeatable up to 6 hours with change of topic.

7475-8475. Literary Publishing. (3). Theory and practice of publication management and literary editing.

7476-8476. Modern Popular and Literary Tradition. (3). Examination of issues (e.g. gender, nationalism, punishment) as they are represented in the texts of high and low culture beginning in the modern period,

emphasizing how such representation challenges the distinction between high and low culture. May be repeated for a maximum of 6 credit hours.

7477-8477. Textuality: History, Culture, Form. (3). Historical examination of ways in which texts are produced. May be repeated for a maximum of 6 credit hours.

7478-8478. Textuality and Identity. (3). Relationship between textuality and social groups. May be repeated for a maximum of 6 credit hours.

7479-8479. Studies in Cultural Figures. (3). Examination of selected writers or cultural figures with emphasis on biography, bibliography, and the shape of the writer's or figure's career. May be repeated for a maximum of 6 credit hours.

7480-8480. Cultural Theories. (3). Advanced social, political, and cultural theories that structure the understanding of cultural texts. May be repeated for a maximum of 6 credit hours.

7481-8481. Early Popular and Literary Traditions. (3). Examination of the relationship of texts of both high and low culture up to the modern period. May be repeated for a maximum of 6 credit hours.

7501-8501. History of the English Language. (3).

7511-8511. Introduction to Modern English. (3). An introduction to the nature of language with emphasis on basic principles of English phonology and morphology with special attention to syntax; emphasis on collecting and handling of linguistic data for research purposes.

7512-8512. English Syntax. (3). Study of structures of Modern English from perspective of various contemporary theories to see how form and meaning are integrally related; emphasis on methods of investigating questions that need to be asked in exploring new territory.

7513-8513. Dialectology. (3). Dialects and varieties of American English; emphasis on methods of analyzing data and techniques of eliciting responses to gain information about word forms, syntax, and pronunciation; social implications.

7514-8514. Sociolinguistics. (3). Language use in relation to social interaction and power structures; inequality in varied environments; appraisal of methodologies used in gathering and analyzing data.

7515-8515. Language and Literature. (3). Application of linguistic theory to analysis of literature, nature of literary language, and linguistic options open to writers.

7516-8516. English Phonetics and Phonology. (3). Articulatory and linguistic phonetics, phonetic transcription, suprasegmental phonology, overview of English phonology, and information on teaching English pronunciation to speakers of other languages.

7517-8517. Studies in Discourse Analysis. (3). Examination of the tools and methods used by various subdisciplines of English (linguistics, rhetoric, and literature) to analyze forms of discourse, including legal, medical, scientific, technical, business, literary, academic, and oral texts.

7530-8530. Field Experience and Practicum in ESL. (3, 6). Experience in observing and teaching, peer teaching, and work with an English as a Second Language (ESL) specialist.

7531-8531. Theory and History of ESL. (3). Survey of relation of linguistic principles to second language acquisition.

7532-8532. Principles of Skills Assessment in ESL. (3). Application of theories of teaching second language skills with emphasis on testing in a second language.

7533-8533. Methods and Techniques of ESL in K-12. (3). Techniques and resources for working with children and adolescents for whom English is a second language.

7534-8534. Second Language Acquisition, Bilingualism, and Bidialectalism. (3). Theories of second language acquisition, development of second language proficiency, and research in bilingualism.

7535-8535. ESL Grammar. (3). Grammatical systems and strategies of Modern English; analysis of English structures that tend to cause difficulty for ESL/SESD speakers.

7536-8536. Issues in Second Language Writing. (3). Emphasis on research in second language writing, especially the role of psychological, social, and cultural influences on learning to write in a second language.

7537-8537. Issues in Second Language Reading. (3). Emphasis on how non-native speakers of English learn to read in English, the effect of context and culture on L2 reading, and culturally related responses to reading and literacy traditions.

7538-8538. Cultural Issues in English as a Second Language. (3). Impact of culture on non-English language background speakers as well as the particular aspects of U.S. culture and traditions needed for successful acculturation.

7590-8590. Applied and Theoretical Linguistics. (3). Intensive study of specialized areas in English linguistics. Repeatable up to 9 hours with change of topic.

7601-8601. Creative Nonfiction Workshop. (3). Emphasis on examination and discussion of creative nonfiction written by students. Repeatable to a maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

7602-8602. Fiction Workshop. (3). Emphasis on the examination and the discussion of fiction written by students. Repeatable to maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

7603-8603. Poetry Workshop. (3). Emphasis on the examination and the discussion of poetry written by students. Repeatable to maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

7701-8701. History of Criticism and Theory. (3). History of literary criticism and theory, classical to modern.

7702-8702. Contemporary Criticism and Theory. (3). Examination of major movements in contemporary literary criticism and theory.

7801-8801. History of Composition. (3). Development of approaches to composition traced to their roots in classical tradition through changes introduced by rise of Christianity, scientific revolution, emphasis on universal education in America, and recent shifts in the paradigm.

7802-8802. Theories of Composition: Early Perspectives. (3). Application of early theories of composition to tasks faced by modern writers and writing theorists; selections from early theorists, such as Plato, Aristotle, Cicero, Justin Martyr, and Augustine.

7803-8803. Theories of Composition: Modern Perspectives. (3). Writings of modern composition theorists, including Flower, Kinneavy, Shaughnessy, Young, and others, with special emphasis on invention, purpose, arrangement, style, and audience.

7805-8805. Foundations of Technical Writing. (3). Introduction to fields of scientific, and corporate writing; relevant theories in the fields, including classical rhetoric, modern discourse theory, cognitive psychology, and semiotics; extensive practice in writing and analyzing technical documents

7806-8806. Research Methods in Technical Writing. (3). Bibliographic techniques and an introduction to empirical methodologies for the study of the writing process and the testing of written documents.

7807-8807. Workshop: Government and Corporate Writing. (3). Textual and contextual analysis of the kinds of writing produced most often in government, law, and business; practice in writing correspondence reports, briefs, manuals, and proposals.

7808-8808. Workshop: Scientific and Technical Writing. (3). Textual and contextual analysis of the kinds of writing produced most often in industry and the academic research community; practice in writing documents such as technical proposals, reports, computer documentation, and papers for publication.

7809-8809. Technical Editing. (3). Current practices in editing and publication in the field of technical communication; topics include copy-editing, substantive editing, author-editor relations, and the production process.

7810-8810. Document Design. (3). Theory of visual and written communication, focusing on the problem of how to integrate graphics and written text; practice in design and desktop publishing.

7811-8811. Internship in Professional Writing. (3). Assigned on the basis of qualifications and availability, student does a semester's work in technical, scientific, legal, government, or business writing and provides an extensive report and analysis. **PREREQUISITE:** 12 hours of graduate study.

7812-8812. Memphis Urban Writing Institute I. (3). (Same as ICL 7304-8304). Intensive study of writing research, current writing practices, and issues and trends related to K-12 writing instruction.

7813-8813. Memphis Urban Writing Institute II. (3). (Same as ICL 7305-8305). Prepares K-12 teachers to improve their own writing practices and assume a leadership role in writing instruction in their schools.

7816-8816. Seminar in Theorists in Professional Writing. (3). A study of the works of major modern writing theorists in areas such as document design, collaboration, science, persuasion, editing, and writing process.

7817-8817. Seminar in Composition Theorists. (3). Readings from and study of major modern theorists in invention, argumentation, literacy, writing, and discourse.

7862-8862. Writing Technical Manuals. (3). Focus on theories of manual writing, including minimal and cognitive approaches, with discussion of learning strategies and usability studies.

†7996. Thesis. (1-6). A prospectus for the thesis must be approved by the student's advisor and the department chair before the student registers for this course. The completed thesis must be approved by at least two readers.

8900. English Studies Colloquium. (3). Defines and compares the history, methodologies, and current issues of each of the concentrations in the doctoral program to provide integrative understanding of the discipline.

†9000. Dissertation. (1-9). No more than 9 hours may be applied toward the degree.

†Grades of S, U, or IP will be given

FOREIGN LANGUAGES AND LITERATURES

Room 375A Winfield Dunn Building
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RALPH ALBANESE, JR., PhD
Chair

FERNANDO BURGOS, PhD
Coordinator of Graduate Studies
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MEMBERS

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PhD (1996), The University of California, Berkeley [2002]

ADJUNCT MEMBERS

MONIQUE MANOPOULOS, *Instructor of French*

PhD (1994), The University of Iowa [2001]

I. The Department of Foreign Languages and Literatures offers a program leading to the Master of Arts degree in Romance Languages with concentration in either French or Spanish.

II. MA Degree Program

A student entering the program will be assigned a major advisor by the chair, and this advisor is to be consulted in all matters concerning the student's program of study. It is the student's responsibility to obtain from the department office copies of the Information Sheet and the Required Reading List for detailed descriptions of requirements.

A. Program Admission

1. A minimum of 24 upper-division semester hours or the equivalent in French, Spanish or a combination of the two.
2. A reasonable proficiency in the language of concentration, to be determined by the department prior to admission.
3. Two letters of recommendation from professors who have taught the applicant.
4. A 3.0 GPA for upper-division courses in the field.
5. Minimum of 450 on the quantitative portion of the GRE.
6. Exceptions to Requirements 1, 4, and 5 may be made with the approval of the coordinator of graduate studies and the department chair. Undergraduate GPAs below 2.5 or Quantitative GREs below 430 also require the approval of the Dean of the Graduate School.

B. Program Requirements

1. A total of 30 semester hours for candidates writing a thesis.
2. A total of 33 semester hours for candidates not writing a thesis.
3. A minimum of 6 semester hours in the field of Romance Languages and Literatures from the following options:
 - a. Coursework in linguistics offered in the Department of Foreign Languages and Literatures (LING 7101, 7201, FREN 6301, 7401, SPAN 6306, 7301, 7302, 7304, 7305).
 - b. Coursework in the field of Romance Languages and Literatures outside the language of concentration.
4. Up to 9 hours may be taken in a collateral area with prior approval of the coordinator of graduate studies.
5. At least 23 hours must be taken in 7000 level courses.
6. A reading knowledge of a foreign language other than that of the concentration. This may be demonstrated by (a) achieving the forty-fifth (45th) percentile on the Graduate School Foreign Language Test (ETS), (b) achieving a grade of "3.0" or better in a fourth-semester language course (e.g. FREN/GERM/SPAN 2202 or equivalent), (c) achieving a grade of "3.0" or better in a graduate reading course (FREN/GERM 5701 or equivalent), or (d) some other manner approved by the coordinator of graduate studies.
7. A comprehensive written and oral examination after completion of all course work.
8. If a thesis is presented, an oral examination on the area of the thesis is required. The thesis requires 6 hours. The maximum number of thesis hours that will count toward the degree is 6, although a student may have to enroll in more hours in order to maintain continuous enrollment.

LINGUISTICS (LING)

7101. Introduction to Linguistics I. (3). Nature of language; history of linguistic theory; morphology and syntax, concentrating on languages other than English.

7201. Introduction to Linguistics II. (3). Principles and applications of phonology, with major emphasis on languages other than English; historical linguistics, concentrating on Romance and other language families; psycholinguistics, sociolinguistics, semantics.

FRENCH (FREN)

6301. French Phonetics. (3). The theory and practice of French sounds; especially recommended for teachers of French.

6302. Advanced French Grammar. (3). Practical, syntactical, and lexical usage of contemporary French.

6412. Seventeenth and Eighteenth Century French Literature. (3). Classical theater and critical theories; essay, nouvelle, and conte in the eighteenth century. PREREQUISITE: FREN 3301; RECOMMENDED: FREN 3411.

6413. Nineteenth Century French Literature. (3). Survey of literary movements and major authors with readings in all the major genres. PREREQUISITE: FREN 3301. RECOMMENDED: FREN 3411.

6414. Twentieth Century French Literature. (3). Survey of literary movements and major authors with readings in the novel, poetry, and theater. PREREQUISITE: FREN 3301 RECOMMENDED: FREN 3411.

7101. French for Business and Economy. (3). Basic vocabulary and institutions necessary for dealing in the French business world. Open only to students enrolled in International MBA concentration. PREREQUISITE: Successful completion of proficiency examination.

7102. French for Commerce. (3). Practical training in various aspects of correspondence and communications necessary for conducting business in French-speaking communities. Open only to students admitted to International MBA concentration. PREREQUISITE: FREN 7101 or equivalent.

7103. Readings in French Business I. (3). Close reading of a selection of texts on business and economic life of the French-speaking world; emphasis on perfection of reading and writing skills in French. PREREQUISITE: 7102 or equivalent.

7305. French Stylistics. (3). (6305). Way in which texts produce meanings, development of analytic and interpretative skills with which to read the textuality of literary writing and to determine devices which affect its particular expressiveness; examination of vocabulary, syntax structure, and rhetorical figures as literary convention and as deviation from convention.

7401. History of the Language and Old French. (3). Development of the French language from Latin to the early 14th century; structure of Old French in preparation for reading medieval texts. Readings include several Lais of Marie de France and la Chanson de Roland.

7402. Medieval French Literature. (3). Major genres and authors of the Middle Ages; readings include the roman courtois of Chretien de Troyes, the Lais of Marie de France, le Roman de la Rose, Aucassin et Nicolette, le Roman de Renard, theatre, and lyric poetry from the trouveres to Charles d'Orleans and Villon.

7421. The French Renaissance. (3). Changes in aesthetics, poetics, and philosophy as seen in the writings of l'Ecole Lyonnaise, the Pleiade, Rabelais, Montaigne, Calvin, de Navarre, Etienne Jodelle, and Robert Garnier.

7425. Classicism prior to 1600. (3) Aesthetics and poetics of the baroque and preclassical periods: selections from the writings of the precieux and baroque poets, Mairet, Rotrou, Saint-Sorlin, Scarron, Sorel, Cyrano de Bergerac; the theater of Corneille; early comedies of Moliere.

7426. Classicism after 1660. (3). The impact of Boileau and l'Art poetique in crystallizing classical principles and patterns; masterpieces of Moliere and Racine; representative selections from masters of the other genres in this period of French literature.

7470-7479. Special Topics in French Literature. (3). Literary movements, individual authors, or groups of authors of the nineteenth and twentieth centuries.

7491. Seminar in French Literature. (3). Introduction to research through investigations of limited scope. May be repeated for up to 9 credit hours with a different topic.

7492. Research in French Studies. (1-6). May be repeated for credit toward the concentration in French up to a maximum of 6 hours.

7531. The Age of the Enlightenment. (3). Comprehensive study of literary trends and innovations within the major genres as related to liberal ideas underlying the philosophy of Montesquieu, Voltaire, Diderot, Rousseau, and their contemporaries.

7691. Bibliography and Methods of Research. (1). Examination of bibliographical aids for the study of French literature; problems involved in various types of research; and study of the presentation and documentation of scholarly writing. Required of all graduate students.

†7791. The Teaching of French. (1). Required of all graduate assistants in French.

†7792. Practicum in Teaching (1-3). Professional development in teaching of French, including classroom experience, tests and measurement, language proficiency, computer-assisted instruction, and use of audio-visual resources in the classroom. May be repeated. Limited to graduate students in French. **PREREQUISITE:** Permission of graduate coordinator.

†7793. Reading for Comprehensives. (1-6). Directed readings of required lists as preparation for comprehensive written and oral examination. Arranged on an individual basis. May be repeated. Limited to graduate students in French. **PREREQUISITES:** Students must have completed 18 hours of graduate work; permission of graduate coordinator.

†7996. Thesis. (1-6). The thesis in French carries 6 semester hours and must be approved by the candidate's thesis committee.

†Grades of S, U, or IP will be given

GERMAN (GERM)

7101. Advanced Business German I. (3). Intensive work with interpreting and composing German business letters and other correspondence (TELEX, FAX, e-mail), German business organization and accounting practices; maintenance of conversational skills. Course is conducted in German. Open only to students admitted to International MBA concentration. **PREREQUISITE:** Successful completion of proficiency examination.

7102. Advanced Business German II. (3). German business documentation for domestic and foreign trade; finance, banking, role of the Bundesbank; advertising and marketing. Maintenance of conversational skills. Course is conducted in German. Open only to students admitted to International MBA concentration. **PREREQUISITE:** GERM 7101 or equivalent.

7103. Advanced Business German III. (3). Business and West German society 1949-1994; culture and business of the former East Germany; reunification; culture and business practices of other Germanophone countries of Europe (i.e., Austria, Switzerland, etc.); continuation of practice in correspondence and conversation. Conducted primarily in German.

JAPANESE (JAPN)

7101. Advanced Business Japanese I. (3). Vocabulary and institutions necessary for dealing in the Japanese business world. Maintenance and extension of conversational skills to business context. Course is conducted in Japanese. Open only to students enrolled in International MBA concentration. **PREREQUISITE:** Successful completion of proficiency examination.

7102. Advanced Business Japanese II. (3). Business Japanese language skills applied to specific fields of business, which include finance, manufacturing, the tourist industry, etc. Course is conducted in Japanese. Open only to students enrolled in International MBA concentration. **PREREQUISITE:** JAPN 7101 or equivalent.

7103. Advanced Business Japanese III. (3). Interpreting and composing various letters and documents for conducting business in Japanese. Course is conducted in Japanese. Open only to students enrolled in International MBA concentration. **PREREQUISITE:** JAPN 7102 or equivalent.

SPANISH (SPAN)

6302. Advanced Grammar. (3). Special problems in grammar. Required of all graduate assistants in Spanish and recommended for all MA candidates.

6306. Applied Spanish Linguistics. (3). (6501). Current research in linguistics, psycholinguistics, and sociolinguistics and their contribution to second language teaching and second language learning.

6410. Spanish Literature and Civilization. (3). Survey of literary movements and major figures with readings in literature and civilization. Required for all MA candidates.

6510. Spanish American Literature and Civilization. (3). Survey of literary movements and major figures with readings in literature and civilization. Required for all MA candidates.

7101. Introduction to Hispanic Culture and Business. (3). Hispanic community and family, customs, geography, demography of Spain and Spanish America; United States business in Latin America and Hispanic business in the United States. Course is conducted in Spanish. Open only to students admitted to International MBA concentration. **PREREQUISITE:** Successful completion of proficiency examination.

7102. Commerce in the Hispanic World. (3). Hispanic markets and techniques of penetrating them; international advertising, import-export and economic review of Hispanic nations; history and circumstances of the Hispanic corporate world. Course is conducted in Spanish. Open only to students admitted to International MBA concentration. **PREREQUISITE:** SPAN 7101 or equivalent.

7103. Spanish Commercial Correspondence and Documents I (3). Various letters and documents for conducting business among Hispanic nations. Conducted in Spanish. **PREREQUISITE:** SPAN 7102 or equivalent.

7201. Workshop on Spanish Language. (3). Idiomatic construction, word formation, culturally connotated vocabulary and modern style techniques through intensive text analysis and writing. Recommended: SPAN 6302.

7301. Spanish Phonology. (3). (6301). Principles of analysis of the sound system of human language; general sound system (phonetics) of Spanish; and phonemic contrastive analysis of sound systems of Spanish and English.

7302. Spanish Syntax and Semantics. (3). Spanish syntax and compositional semantics: constituent structure, syntactic categories and grammatical relations, prepositional semantics, quantification, modality, and tense.

7304. Evolution of Spanish. (3). (6304). General history of the Spanish language based on political and cultural history of Spain and Spanish America; history of sound system, grammatical structures, word borrowings, and changes in meaning.

7305. Spanish American Dialectology. (3). (6305). Fundamental notions of language variation, regional and social varieties, stylistic varieties and linguistic demography of general features of Latin American Spanish with respect to phonology, morphosyntax, and semantics.

7420. Medieval Spanish Literature. (3). (6420). Reading of Old Spanish; Medieval Spanish literature from Mozarabic lyric through La Celestina.

7421. The Golden Age. (3). Don Quixote and other classic works of the sixteenth and seventeenth centuries.

7430. Eighteenth and Nineteenth Century Spanish Literature. (3). (6430). Romantic and post-romantic poetry and drama; costumbrismo and rise of regional novel, realistic novel, and naturalistic novel.

7431. Studies in 20th Century Peninsular Literature. (3). Spanish drama, prose, and poetry of the twentieth century. Particular attention given to generations of 1898 and 1927 as well as the post-civil war period.

7451. Studies on Spanish Culture. (3). Literary history of Spanish autonomous regions as viewed through important writers; emphasis on regional dialects, character, economy, and culture; readings and discussions in Spanish. May be repeated for a maximum of 6 credit hours. Recommended: SPAN 6410.

7453. Studies on Latin American Culture. (3). Literary survey of social issues that affect perceptions of Latin America, its peculiar problems and its social upheaval; readings and discussions in Spanish.

May be repeated for a maximum of 6 credit hours. Recommended: SPAN 6510.

7532. Spanish American Drama. (3). (6532). Development of the drama in Spanish America, with an emphasis on the twentieth century. **PREREQUISITES:** Permission of instructor.

7561. Pre-Contemporary Spanish American Prose Fiction. (3). Evolution of the Spanish American novel and short story from their beginnings through early twentieth century.

7562. Contemporary Spanish American Prose Fiction. (3). Representative Spanish American novels and short stories of the twentieth century since 1940.

7591. Seminar in Spanish American Literature. (3). Topics in Spanish American literature designed to be of special interest for the advanced graduate student. May be repeated for a maximum of 9 credit hours.

7691. Research in Hispanic Studies. (1-6). May be repeated for credit toward the concentration in Spanish up to 12 hours.

7790-7799. Special Topics in Hispanic Literature and Linguistics. (3). Selected topics in Hispanic literature and linguistics; may include, but not limited to Latin-American short fiction, nineteenth century Peninsular literature, Latin-American drama, and variety of sociolinguistic studies. May be repeated for a maximum of 12 credit hours.

†7891. Teaching of Spanish. (3). Methodology, theory, practice of teaching a foreign language. Credit not applicable to major. Limited to graduate students in Spanish. **PREREQUISITE:** Permission of graduate coordinator.

†7892. Bibliography and Methods of Research. (3). Examination of bibliographical aids for study of Hispanic literature or Spanish linguistics, or both; problems involved in various types of research and study of the presentation and documentation of scholarly writing. Limited to graduate students in Romance Languages. **PREREQUISITE:** Permission of graduate coordinator.

†7893. Professional Development Seminar for Romance Language Majors. (3). Presentation of scholarly work by faculty, graduate students, and visiting professors, writers. Limited to graduate students in Romance Languages. **PREREQUISITE:** Permission of graduate coordinator.

†7894. Reading for Comprehensives. (1-6). Directed readings of the required lists as preparation for the comprehensive written and oral examination. Arranged on an individual basis. May be repeated for a maximum of 6 credit hours. Limited to graduate students in Romance Languages. **PREREQUISITE:** Permission of graduate coordinator and 18 hours of graduate work.

†7996. Thesis. (1-6). The thesis in Spanish carries 6 semester hours and must be approved by the candidate's thesis committee.

†Grades of S, U, or IP will be given

LANGUAGES AND LITERATURES (LALI)

6010-29. Special Topics in Foreign Literatures. (3). Topics are varied and announced in *Schedule of Classes*.

6441. Dante. (3). Vita Nuova and Divina Commedia; presented in English.

7780. Individual Studies in Business Foreign Language. (1-3). Directed individual study in selected areas of language and culture chosen in consultation with instructor. May be repeated for a maximum of 10 credit hours. **PREREQUISITE:** Permission of instructor.

GEOGRAPHY

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HSIANG-TE KUNG, PhD
Chair

THAD A. WASKLEWICZ, PhD,
Coordinator of Graduate Studies
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THAD WASKLEWICZ, *Assistant Professor*
PhD (1996), Arizona State University [2006]

AFFILIATE MEMBERS

JOHN D. BIES, *Visiting Assistant Professor*
PhD (1972), University of Missouri [2003]

I. The Department of Geography offers graduate programs leading to the Master of Arts and the Master of Science degrees.

II. MA and MS Degree Programs

A. Program Admission

Contingent upon admission to the Graduate School and the approval of the departmental chair and the departmental graduate faculty. All applicants must take the GRE for department admission. All applicants need three letters of recommendation sent to the graduate coordinator, as well as a personal letter of intent. Applications and information for all admission requirements can be obtained from the graduate coordinator. Students not having undergraduate credit for geographic techniques must take a techniques course (65—/75—) at its earliest offering. Students not having undergraduate credit in regional geography must include at least one regional course in their graduate program.

B. Program Requirements (MA and MS)

1. Satisfactory completion of GEOG 7801.
2. Completion of either Option I or Option II.
 - a. Option I: minimum of 27 semester hours and a six-hour thesis. At least 23 semester hours of courses must be taken at the 7000 level.
 - b. Option II: minimum of 36 semester hours including one research paper of professional quality and acceptable format. At least 25 semester hours of courses must be taken at the 7000 level. Each student must take GEOG 7900.
3. One three-credit-hour graduate course (6000 or 7000 level) from each of the core areas:
 - a. Environmental and earth sciences: 61—, 62—, 71—, 72— numbered courses
 - b. Human-economic geography: 64—, 74— numbered courses
 - c. Geographic techniques: 65—, 75— numbered courses. Students not submitting acceptable undergraduate credit in quantitative methods or statistics will be required to take GEOG 6521.
4. Each student should submit a degree program plan to the graduate faculty after completion of 9 semester hours of graduate course work.
5. In consultation with the advisor, each student should select a guidance committee by the completion of 18 semester hours of graduate course work.
6. The thesis proposal should be submitted to the advisor by completion of 18 hours of graduate course work.
7. Successful completion of an oral and written comprehensive examination; not to be taken prior to the registration for the 18th semester credit hour. A separate defense of the thesis is required for those students electing Option I. Students electing Option II must orally present their professional paper.

The MS degree will be awarded only to those students submitting a minimum of 12 semester hours of course work from the combined areas of environmental and earth science and geographic techniques.

GEOGRAPHY (GEOG)

6120. Geomorphometry. (3). Quantitative analysis of the morphology of landforms, integrating data acquisition from field work, topographic maps, and digital terrain models; GPS and GIS are used to derive, store, manipulate, and analyze morphometric data. The course may not be repeated. **PREREQUISITES:** GEOG 1020, 1021, or GEOL 1040.

6122. Environmental and Earth Science: The Soil. (3). Processes and dynamics of soil profile development; major models of soil development examined and applied to soil genesis in Tennessee; application of soil techniques to archaeology, planning, earth sciences, and soil conservation and erosion problems; emphasis on field and laboratory techniques with field work in soil mapping and soil taxonomy. *Two lecture, two laboratory hours per week.*

6201. Urbanization and Environment. (3). (Same as PLAN 6201). A study of the ways humans have changed the natural environment by urbanization and how physical features and processes influence the development and function of cities.

6211. Climatology. (3). Study of climatic elements and methods of data analysis; application of climatology in agriculture, health, economics, and architecture. **PREREQUISITE:** GEOG 1010 and PHYS 2011 and 2010.

6215. Physical Climatology. (3). Components of earth's energy balance; emphasis on solar radiation, heat transfer, and evapotranspiration. **PREREQUISITES:** GEOG 1010, PHYS 2011 and 2111.

6231. Water Resources. (3). (Same as PLAN 6231). Study of hydrologic processes and their application to needs of cities, industry, agriculture, and recreation.

6241. Biogeography. (3). Principles underlying spatial distribution of plants, including physical, biotic, and historical controls; vegetation dynamics; survey of patterns and processes of North American vegetation.

6251. Environmental Issues and Natural Hazards. (3). Interrelationships between human beings and natural hazards; importance of policy decisions; planet-wide climatic changes, potential changes in earth-sun relations, inadequate food production, local disasters, and nuclear contamination.

6271. Park Resource Protection and Management I. (4). Concepts of geography and psychology required for resource protection and visitor management positions as park rangers in federal and state parks. Classroom instruction, readings, and applied practical exercises. **PREREQUISITE:** Permission of instructor.

6272. Park Resource Protection and Management II. (4). Advanced content and skills involved in protecting natural resources and managing park visitor behavior in recreation areas; knowledge and skill-building in natural resource law, enforcement skills, and advanced interpersonal development. **PREREQUISITE:** GEOG 6271 and permission of instructor.

6304. Geography of Europe. (3). A geographic analysis of the physical, cultural, and economic characteristics of Europe.

6306. Geography of Asia. (3). Significance of regional differences in Japan, China, and India, and a brief survey of the remaining areas.

6313. Geography of the United States and Canada. (3). Physical, cultural, and economic characteristics of the United States and Canada.

6316. Geography of the South. (3). Selected regions in the South with emphasis on changes and trends in the cultural-physical complex.

6318. Geography of American National Parks. (3). Individual types of parks with regard to location, physical characteristics, and use; history and mission of the National Park Service with regard to management of national parks past and present; implications for future public land management strategies.

6324. Geography of Middle America. (3). Peoples and places of Mexico, Central America, and the Caribbean; history of Mayan and Aztec culture; contemporary development issues, and the region's global situation.

6325. Geography of South America. (3). Lands and peoples of the diverse regions of South America. Folk populations, Amazonia, Andean issues; contemporary economics and resources in a developing world region.

6431. Urban Geography. (3). Allocation of land for urban uses; the adjustments and adaptations to existing physical phenomena; the patterns, functions, and forms of specific urban land areas; and some of the continuous problems of urban development and growth.

6443. Transportation Planning. (3). (Same as PLAN 6443). Planning for various transportation modes and networks and impact on urban land-use and contemporary development problems.

6502. Computer Cartography. (3). (Same as PLAN 6502). Instruction in use of computer mapping programs as effective techniques for visual presentation of a wide variety of data. *Two lecture, two laboratory hours per week.*

6510. Aerial Photo Interpretation. (3). (Same as GEOL 6510). Systematic treatment of elements and steps involved in interpreting, measuring, and mapping of images appearing on aerial photographs. *Two lecture, two laboratory hours per week.*

6511. Remote Sensing of the Environment. (3). (Same as GEOL 6512). Survey of theory and application; using color infrared, thermal, and radar images generated from satellites for geographic, environmental, and planning purposes. *Two lecture, two laboratory hours per week.* **PREREQUISITE:** GEOG 4510/6510 or consent of instructor.

6515. Geographic Information Science. (3). Introduction to basic concepts, components, and functions of Geographic Information Science using ARC/INFO GIS; topics include concepts and structure; of spatial data, database planning and design, data quality control, automating spatial data, attribute data management, spatial manipulation, and spatial analysis techniques. **PREREQUISITE:** GEOG 1010, 1020, 1301, 3430, or 4201, or permission of instructor.

6521. Quantitative Methods. (3). (Same as PLAN 6521). Introduction to quantitative methods in spatial analysis. **PREREQUISITE:** Permission of instructor.

6525. Analytical Geographic Information Science. (3). Advanced concepts, methods, and principles of GIS; practical experience in analytic use of spatial information: GIS data structure; error and uncertainty in GIS; management and measurement of spatial data; single and multiple-layer operations; spatial correlation analysis; point pattern analysis using GIS, INFO, and AML programming; geographical analysis and applications in resource and environment. **PREREQUISITE:** GEOG 4/6515 AND 4/6502, or permission of instructor.

6531. Field Methods. (3). Basic methods of geographic analysis used in classifying, analyzing, and reporting field-generated data including field mapping, sampling procedures, questionnaires, and archival and public document research. *One and one-half lecture, three hours laboratory hours per week.*

6610-19. Special Topics in Geography. (1-3). Topics are varied and announced in *Schedule of Classes*.

†6700. Geography Internship. (1-9). Provides opportunity to gain experience working with an agency in which geographic knowledge can be utilized. May be repeated for a maximum of 9 hours. Credit allowed only after acceptance of report. **PREREQUISITE:** Approval of instructor and chair.

7111-8111. Seminar in Climatology. (3). Discussion of major topics in climatology, including: climate change, el nino, ozone depletion, acid rain, urban heat islands, and other topics. **PREREQUISITE:** GEOG 6211.

7120-8120. Seminar in Geomorphology. (3). Analysis and application of major geomorphic models; threshold, episodic, time-space, systems, and magnitude; frequency principles examined in both classroom and field; dating techniques applied to geomorphic interpretations; individual and team projects required.

7201-8201. Environmental Analysis Seminar. (3). (Same as PLAN 7302). Analytical and qualitative critique of the physical environment with emphasis on environmental quality, including air and water quality standards, soil erosion, solid waste management, and nuisance control.

7221-8221. Seminar in Conservation. (3). Selected areas of study in conservation, including overpopulation, deforestation, desertification, food shortages, pollution, and soil erosion. May be repeated with change in content for a maximum of 6 hours credit.

7231-8231. Seminar in Water Resources. (3). Issues, problems, and research on selected topics of surface and groundwater, water uses, and fluvial process.

7241-8241. Seminar in Biogeography. (3). Major topics and research problems in biogeography; may include vegetation dynamics, vegetation history, or regional issues.

7301-8301. Seminar in Regional Geography. (3). Regional analysis of selected areas of the world including: the U.S., Canada, Europe, Soviet Union, Middle America, South America, Asia, Africa, and Oceania. May be repeated with a change in content for a maximum of 6 hours credit.

7316-8316. Seminar in the U.S. South. (3). Systematic analysis of distinctive physical and human phenomena characteristic of the U.S. South.

7430-8430. Seminar in Economic Geography. (3). Selected topics in economic geography. Subjects studied will vary. May be repeated with change in content for a total of 6 hours credit.

7431-8431. Seminar in Urban Geography. (3). A study of the spatial aspects of urban development and the analysis of selected urban problems.

7434-8434. Seminar in Land Use. (3). Systematic analysis of suburban and rural land use characteristics, patterns, and problems. Focus on US.

7471-8471. Cultural Geography. (3). A systematic analysis of the manner in which selected culture traits interact with other patterned phenomena to produce distinctive geographic landscapes. Individual student study on selected problems is an integral part of this course.

7503-8503. Seminar in Cartography. (3). Selected areas of study of current research in cartography; topics may include digital mapping, map communications, global positioning systems, or other related topics. May be repeated with a change of content for a maximum of 6 hours credit.

7504-8504. Seminar in Geographic Information Systems. (3). (Same as PLAN 7504). Implementation and management of GIS technology; design, automation, and applications to land-use and natural resource inventories.

7511-8511. Seminar in Remote Sensing. (3). Use of remote sensing technology for solving environmental problems; state-of-the-art techniques and methods of image processing.

7541-8541. Field Studies in Geography. (1-6). Faculty conducted field trip emphasizing study of geographical phenomena; location will vary; topics may include physical landscapes, land-use patterns, cross-cultural analysis, micro and regional economics, or other geographical processes. Credit hours are based on length of time in field. Requires research and written report. May be repeated with a change in content for maximum of 6 hours. **PREREQUISITES:** Permission of instructor and completion of special registration.

7621. Independent Study. (1-3). Independent investigation of a research problem selected in consultation with the instructor. May be repeated for a maximum of 6 credit hours.

†7631. Seminar for Teaching Assistants. (3). Overview and practical demonstrations of the art of teaching geography; includes physical, cultural, and regional geography topics. Required of all teaching assistants.

†7641. Reading for Comprehensive Examinations. (1-6). Arranged on an individual basis for geography graduate students only. **PREREQUISITE:** Completion of 18 hours of coursework.

†7651. Graduate Colloquium. (3). Presentation of scholarly research activity, examination of contemporary issues in geography, and participation in departmental colloquia. May be repeated for a maximum of 6 credit hours.

7801. Geographic Thought and Methodology. (3). Introduces student to major philosophies of geography and to methods of geographic research.

7811-8811. Geography for Teachers. (3). Application of geographic principles in teaching social studies and earth sciences. Emphasis on geography of Memphis and Mid-South.

†7900. Professional Paper. (1) Preparation and presentation of research paper.

†7996. Thesis. (1-6). Student must research, write, and defend a thesis on a topic approved by major professor and advisory committee.

†Grades of S, U, or IP will be given

GEOLOGICAL SCIENCES

Room 402, J. M. Smith Building

GEORGE H. SWIHART, PhD
Chair

RANDEL T. COX, PhD
Coordinator of Graduate Studies
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MEMBERS

- PAUL BODIN, *Assistant Professor*
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PhD (1982), Cornell University [2006]
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PhD (1995), University of Missouri [2006]
MICHAEL ELLIS, *Associate Professor*
PhD (1984), Washington State University [2004]
GISELE RUIZ-GOLDSTEIN, *Professor*,
PhD (1986), Tulane University [2003]
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PhD (1985), The University of Wyoming [2001]
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PhD (1983), The University of California at Los Angeles [2005]
EUGENE SCHWEIG, III, *Adjunct Associate Professor*
PhD (1985), Stanford University [2004]
ROBERT F. SMALLEY, JR., *Associate Research Professor*
PhD (1988), Cornell University [2006]
GEORGE H. SWIHART, *Professor*
PhD (1987), The University of Chicago [2005]
ROY B. VAN ARSDALE, *Professor*
PhD (1979), The University of Utah [2005]

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PhD (1994), The University of New Mexico [2001]

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- ROBERT HERMANN,
PhD (1974), St. Louis University [2003]
MARTITIA P. TUTTLE,
PhD (1999), University of Maryland [2003]

AFFILIATE MEMBERS

- STEPHEN HORTON,
PhD (1992), University of Nevada-Reno [2003]
CHARLES LANGSTON,
PhD (1976), California Institute of Technology [2003]

I. The Department of Geological Sciences offers a graduate program leading to the Master of Science degree with a major in Geological Sciences and concentrations in Geology and Geophysics, and the Doctor of Philosophy degree with a major in Earth Sciences.

II. MS Degree Program

A. Program Admission

1. Acceptable score on the Graduate Record Examination.
2. An undergraduate degree in geological sciences, physics, chemistry, or mathematics. Students holding a bachelor's degree in other disciplines will be considered on an individual basis.
3. Candidates. Applicants meeting minimum requirements will be accepted into a candidate pool. Pool members will be ranked and accepted up to the capacity of the department.

B. Program Requirements

1. 2 semester hours selected from GEOL 7701, GEOP 7701, GEOP 7702, GEOP 7703, GEOP 7704, GEOP 7705, or GEOP 7706.
2. Concentration requirements
 - a. Geology Concentration: 12 semester hours selected from Geology courses (GEOL). Students may be required to make up deficiencies as determined on an individual basis.
 - b. Geophysics Concentration: GEOP 6101, 6401, 7601, 7602, 7375, and either GEOP 7440 or GEOL 7311. In addition, students may be required to make up deficiencies in one or more courses as determined by their graduate committee.
3. Thesis (GEOL 7996 or GEOP 7996) 6 semester hours.
4. Electives
 - a. Geological Sciences Concentration: Electives selected in consultation with the major professor to complete 32 semester hours.
 - b. Geophysics Concentration: Electives selected in consultation with the graduate committee to complete 32 semester hours.
5. At least 22 hours at or above 7000 level (includes thesis), but including no more than 9 hours of seminar courses except by consent of the Committee.
6. Residency. A student must attend full time for at least one year, defined as two consecutive semesters.
7. Progress.
 - a. Geological Sciences Concentration:
 - 1) The department chair will meet with the student to advise and consent on his or her progress at the end of the first academic year (defined as the end of the semester in which the student completes 16 hours; not to include hours needed to make up deficiencies).
 - 2) Students in the MS degree program are required to consult with their graduate advisor shortly after matriculation in order to become familiar with requirements. Within the second semester, in consultation with his or her advisor, the student must formulate and present a thesis proposal acceptable to the advisory committee. The successful MS candidate will complete a research project in consultation with the advisory committee, submit a thesis of publishable quality describing the results of the research, and orally present and defend the thesis.
 - b. Geophysics Concentration:
 - 1) The student will meet with his/her graduate committee at least once a semester to evaluate progress and to determine appropriate courses for the next semester. In addition, the student and thesis advisor will fill out the Progress Report form at the end of each Fall semester and submit this form to the coordinator of the graduate program.
 - 2) Students in the MS degree program will be assigned a preliminary graduate committee upon arrival; this committee will be replaced by the permanent graduate committee as soon as possible but no later than the end of the second semester in residence. Within the second semester, in consultation with his or her advisor, the student must formulate and present a thesis proposal acceptable to the graduate committee. The successful MS candidate will complete a research project in consultation with the graduate committee, submit a thesis of publishable quality describing the results of the research, and orally present and defend the thesis.
8. Geophysics Concentration: Pass a written comprehensive examination to be administered by the graduate committee two weeks following the second semester of residence.

III. PhD Degree Program (Major in Earth Sciences)

A. Nature of the Program

The doctorate prepares the student for a research career, primarily by establishing a broad knowledge of the basic areas of physics and mathematics, and through the experience of successfully completing a comprehensive unit of original research. Dissertation research tends to be interdisciplinary and may involve topics such as seismotectonics, seismicity, wave propagation phenomena, earth structure, and earth physics, as well as other areas approved by the Student Advisory Committee. Methodology may involve field measurements, remote sensing, seismic instrumentation, seismogram interpretation, discrete signal processing, and elastic theory, among other disciplines. The prescribed examinations will permit the student to demonstrate mastery of the appropriate fields. The individual curriculum will reflect the student's preparation and the needs of the dissertation topic selected, and will assure a strong general knowledge of earth science.

B. Program Admission

1. A minimum score of 650 on the quantitative section of the GRE plus adequate language skills (550 paper TOEFL or 210 computer-based TOEFL).

2. An undergraduate or advanced degree in geology, mathematics, physical sciences, or engineering. For a geology major, the minimum preparation in physical science will be a two or three semester calculus-based course in physics. For a physical science or engineering major, mathematics through differential equations will be considered the minimum preparation. Additional undergraduate preparation in mathematics and physical science or engineering is advisable. The general quality of each applicant's academic record will be reviewed as a key to their ability to complete the doctoral requirements. Evidence of computer literacy will be considered relevant.
3. Earth Sciences is a quantitative and interdisciplinary science. Applicants with a bachelor's degree and an academic record of quality in a relevant field may proceed with a graduate program; those deficient in mathematics, but otherwise showing promise, may be admitted with a requirement of additional mathematics and physics preparation, without graduate credit.

C. Program Requirements

1. A minimum of 72 semester hours of credit beyond the bachelor's degree or a minimum of 40 hours beyond the master's. In addition, students may be required to make up deficiencies in one or more courses as determined by their graduate committee.
2. A diagnostic examination will be given to incoming graduate students. This examination will test each student's preparation and will aid in planning the individual course requirements.
3. The student must pass a qualifying examination to be administered by the student's graduate committee at the start of the student's third semester. The purpose of this examination is to determine if the student has the aptitude and ability to conduct research in his/her chosen specialty.
4. The student must pass a comprehensive examination at the beginning of his/her fifth semester of residence. The purpose of the comprehensive examination is to test basic knowledge. It will be used to recommend additional course work, if necessary. Admission to candidacy is dependent upon passing the comprehensive examination.
5. Each PhD candidate must complete an original research project, submit a written dissertation of publishable quality describing the results of the research, and orally present and defend the research before the advisory committee.
6. Dissertation (GEOP 9000) 9 credit hours

D. Core Course Requirements

1. Students are expected to take the following required courses:
MATH 7375-76 Methods of Mathematical Physics
GEOP 7112 Advanced Geophysics
GEOL 7311 Tectonics
2. Plus three of the following courses (or equivalent credit):
GEOP 6210 Applied Geophysics
GEOP 7402 Earthquake Seismology
GEOP 7440 Active Tectonics
GEOP 7601 Studies in Seismogram Reading
GEOP 7602 Time Series Analysis in Geophysics
GEOP 8401 Advanced Seismology
GEOP 8601 Inverse Methods in Geophysics
PHYS 7100 Classical Mechanics
PHYS 7300 Electrodynamics
3. No more than 9 hours of seminar courses may be included in the total required credit hours except by consent of the Committee. A student who takes 9 hours of seminars in the MS degree program may also take 9 hours of seminars in the PhD degree program.

GEOLOGY (GEOL)

6010-19. Special Topics in Geological Sciences. (3). Topics vary and are announced in the *Schedule of Classes*.

6202. Geomorphology. (4). Description, origin, and interpretation of landforms and their relationships to underlying structure and geologic history; processes acting on earth's surface including active tectonics, weathering, mass-wasting, climate change, and fluvial, shoreline, and glacial processes. *Three lecture, two laboratory hours per week.* PREREQUISITE: GEOL 1103.

6211. Physical Hydrogeology. (4). Physical hydrogeology and development of groundwater; groundwater in hydrologic cycle; aquifer characteristics and tests. *Three lectures and two laboratory hours each week.* PREREQUISITES: GEOL 1103 and one semester of calculus.

6332. Introduction to Geochemistry. (3). Geological and chemical processes which govern or control the migration and distribution of the elements and atomic species in the earth in space and time. *Three lecture hours per week.* PREREQUISITE: CHEM 1110.

6341. Aqueous Geochemistry. (3). Physical chemistry of aqueous solutions as it applies to geochemical processes on earth's surface. PREREQUISITE: CHEM 1110.

6351. Advanced Structural Geology. (3). Analysis of crustal structures: stress and strain in rocks, mechanical behavior of earth materials, mechanical interpretation of crustal structures. PREREQUISITE: GEOL 3512, MATH 1910.

6510. Aerial Photo Interpretation. (3). (Same as GEOG 6510). Systematic treatment of elements and steps involved in interpreting, measuring, and mapping of images appearing on aerial photographs. *Two lecture, two laboratory hours per week.*

6512. Remote Sensing of the Environment. (3). (Same as GEOG 6511). Survey of theory and application of using color, infrared, thermal, and radar images generated from satellites for geographic, geologic, environmental, and planning purposes. *Two lecture, two laboratory hours per week.* PREREQUISITE: GEOG 6510 or permission of instructor.

6701. Spring Field Trip. (1-2). Conducted field trips during spring vacation. About 30 hours of field work will follow 2-4 hours of lectures. Open to non-majors. Among the areas that may be included are Ouachita-Arbuckle-Wichita mountains of Oklahoma; Ouachita and adjacent mineral districts; central and southern Appalachians; and Gulf Coastal Plain. Check *Schedule of Classes* for specific location. NOTE: May be repeated for a maximum of 8 credit hours. PREREQUISITE: Permission of instructor.

7010-19. Special Topics in Geology. (1-3). PREREQUISITE: Permission of instructor.

7100. Basin Analysis. (3). Integration of depositional models using subsurface correlation, seismic stratigraphy, and biostratigraphy in analysis of basin-scale sedimentary systems and their fluids. *Two lecture, two laboratory hours per week.* PREREQUISITE: GEOL 3712.

7102. Electron Beam Analysis. (3). Introduction to scanning electron microscopy and electron beam microanalysis. *One lecture, four laboratory hours per week.* PREREQUISITE: CHEM 1020 or CHEM 1120 and permission of instructor.

7140. Environmental Geochemistry. (3). Inorganic and organic geochemical concepts applied to transport and fate of contaminants in surface water, ground water, and sediment. *Three lecture hours per week.* PREREQUISITE: GEOL 6341 or permission of instructor.

7150. X-Ray Diffraction Techniques. (3). Application of X-ray diffraction techniques to crystallographic problems. *One lecture and four laboratory hours per week.* PREREQUISITE: GEOL 3311 and permission of instructor.

7160. Sediment Diagenesis and Clay Mineralogy. (3). (GEOL 7340). Investigation of physical, geochemical, and mineralogical changes in sediments as they undergo lithification, from the earth's surface to sedimentary basins; changes in the composition and structure of fine-grained layer silicates are a major focus. *Two lecture and two laboratory hours per week.* PREREQUISITE: GEOL 3311 and permission of instructor.

7170. Sedimentary Petrology. (4). (GEOL 7352). Sedimentary rocks in the field, hand specimen, and through the microscope with view of explaining sedimentary rock classification, post depositional changes that occur in sediments, and the bearing these factors have on geology as whole. *Three lecture and two laboratory hours per week.* PREREQUISITE: GEOL 3311, GEOL 3712, and permission of instructor.

7180. Economic Mineral Deposits. (3). (GEOL 7511). Origin, occurrence, and composition of metallic and non-metallic mineral deposits. *Three lecture hours per week.* PREREQUISITE: GEOL 3311 and permission of instructor.

7190. Igneous and Metamorphic Petrology. (4). Description and interpretation of igneous and metamorphic rocks through study of thin sections. *Two lecture, four laboratory hours per week.* PREREQUISITE: GEOL 3312 or equivalent.

7195. Ground Water Hydraulics. (3). (Same as CIVL 7195). Geological contributions to ground water flow; ground water contribution to water demand and conjunctive use; well hydraulics, design, and construction; pump selection; determine aquifer properties via field well tests. PREREQUISITES: GEOL 6211 and permission of instructor.

7197. Ground Water Quality and Control. (3). (Same as CIVL 7197). Analyses of ground water quality and contamination problems; study of multispecies chemical reactions and radioactive and microbiological decay; techniques for monitoring and site remediation of ground

water contamination. PREREQUISITE: CIVL 7170 or permission of instructor.

7202. Quaternary Geology. (3). Synthesis of geomorphologic, stratigraphic, and geochronologic methods used to understand global glacial and interglacial climate fluctuations during last two million years. *Three lecture hours per week.* PREREQUISITE: Permission of instructor.

7301. Geologic Data Analysis. (3). Use of the computer in data file construction and management, use of file with various programs, and use of statistical tests, regression lines, maps, and a classification of data sets with the aid of the computer. *Two lecture and two laboratory hours per week.* PREREQUISITE: COMP 1200 and permission of instructor.

7311. Tectonics. (3). Principles and geometry of plate tectonics; development of plate tectonic theory; relationship between plate motions and regional tectonics; structural, stratigraphic, magmatic, and geophysical features of various tectonic regimes. PREREQUISITE: GEOL 3512 or equivalent.

†7320. Individual Study in Environmental Geology. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. PREREQUISITE: GEOL 1040 and permission of instructor.

†7350. Individual Study in Paleontology. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged. PREREQUISITE: Permission of instructor.

†7360. Individual Study in Mineralogy and Crystallography. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged. PREREQUISITE: Permission of instructor.

†7370. Individual Study in Petrology. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged. PREREQUISITE: Permission of instructor.

†7380. Individual Study in Geomorphology. (1-4). Directed work selected in consultation with instructor. Hours and credit to be arranged. Report required. PREREQUISITE: Permission of instructor.

7400. Advanced Field Methods. (3). Conducted two- to five-day field studies in Geology. Topics will vary according to location and faculty interest. May be repeated for a maximum of 6 credit hours. Only three (3) credits may be applied to major. PREREQUISITE: Permission of instructor.

†7410. Methods in Geology Lab Instruction. (1-4). Pedagogic methods used in teaching introductory geology labs. PREREQUISITE: Permission of instructor

†7420 Lab Safety. (1-4). Use of department equipment; chemical and radiation safety. PREREQUISITE: Permission of instructor.

7701. Seminar in Geology. (1). May be repeated.

†7710. Individual Study in Tectonics. (1-4). Directed laboratory or field research project selected in consultation with instructor. Report required. Hours and credits to be arranged. PREREQUISITE: Permission of instructor.

†7996. Thesis. (1-6). A minimum of 6 credit hours is required; no more than 6 credit hours will count toward the degree.

† Grades of S, U, or IP will be given

GEOPHYSICS (GEOP)

6101. Introduction to Geophysics. (3). Fundamental topics include: earth's age and thermal state; main gravity and magnetic fields; elements of seismic wave propagation; dynamic models of earth's interior; comparison of terrestrial planets. PREREQUISITES: PHYS 2010 and MATH 1910.

6201. Applied Geophysics. (4). Survey of geophysical prospecting methods, seismic reflection and refraction techniques, and electrical, magnetic, and gravity field measurements; emphasis on fundamental principles governing acquisition and interpretation of geophysical data. *Three lecture, two laboratory hours per week.*

6401. Introduction to Seismology. (3). Introductory treatment of elastic stress and strain, elastic wave equation, reflection and refraction of seismic waves, seismic body and surface waves in a spherical earth, seismic rays and travel time, fault plane solutions, earthquake location; introduction to the earthquake source, inverse problems and signal processing. *Two lecture and two laboratory hours per week.* PREREQUISITE: Calculus through differential equations and linear algebra, or permission of instructor.

7010-7019. Special Topics in Geophysics. (1-3).

7112. Advanced Geophysics. (3). Planetary perspective on global geophysics; constitution of earth's interior; earth's gravity and magnetic fields, thermal state; marine geophysics. PREREQUISITE: GEOP 6101 or permission of instructor.

7353. Geodynamics. (3). Application of continuum physics to study of geological and geophysical problems in the earth; quantitative models developed to investigate various geophysical phenomena such as deformation, heat transfer, gravitational effects, viscoelastic effects and earthquake faulting. PREREQUISITE: GEOL 6351 or permission of instructor.

7375. Methods of Mathematical Physics I. (3). (Same as MATH 7375). Vector space, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. PREREQUISITE: MATH 3120, 4242 and 4350 or permission of the instructor.

7376. Methods of Mathematical Physics II. (3). (Same as MATH 7376). Complex variables, asymptotic expansions, special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. PREREQUISITE: MATH 7375.

7400. Advanced Field Methods. (3). Conducted two to five day field studies in Geophysics. Topics will vary according to location and faculty interest. Only three credit hours applicable to major. Required for graduate assistants. PREREQUISITE: Permission of instructor.

7402. Earthquake Seismology. (3). Advanced treatment of seismic sources and wave propagation. Topics include analysis of stress and strain, vector solutions of the wave equation, reflection and refraction of plane waves, surface waves in simple media, anelastic attenuation. PREREQUISITE: GEOP 6401 and 7375, or permission of instructor.

7440. Active Tectonics. (3). Examination of the role of earthquake seismology in understanding active tectonic features on or near the surface of the earth. PREREQUISITE: GEOP 6401 or permission of instructor.

†7601. Studies in Seismogram Reading. (1). Seismogram interpretation of recent earthquakes recorded by instruments of CERI and Global Digital Seismic Network. PREREQUISITE: Permission of instructor.

7602. Geophysics Time Series Analysis. (3). (GEOL 7358). Fundamentals of digital processing of geophysical data, both purely mathematical and applied aspects with attention to digital seismograms and gravity and magnetic data.

7701. Seminar in Geophysics. (1). (GEOL 7641).

7702-8702. Seminar in Seismology. (1-3).

7703-8703. Seminar in Geodesy. (1-3).

7704-8704. Seminar in Active Tectonics. (1-3).

7705-8705. Seminar in Mountain Building Processes. (1-3).

7706-8706. Seminar in Fracture Mechanics. (1-3).

†7750. Individual Study in Geophysics. (1-4). (GEOL 7550). Directed work selected in consultation with instructor. Report required. Hours and credit to be arranged.

†7996. Thesis. (1-6). A minimum of 6 credit hours is required; no more than 6 credit hours will count toward the degree.

8010-19. Special Topics in Geophysics. (1-3).

8401. Advanced Seismology. (3). (Continuation of GEOP 7402.) Surface waves in vertically heterogeneous media, matrix methods for waves in layered media, seismic ray tracing, reflection and refraction of spherical waves, Lamb's problem, integral solutions of the wave equation, generalized ray theory, seismic source theory. PREREQUISITE: GEOP 7402 and GEOP 7376 or permission of instructor.

8601. Inverse Methods in Geophysics. (3). Methods used to determine earth parameters from geophysical observations; applications of probability theory, solution of linear problems and iterative solution of nonlinear problems; students will solve an inverse problem in their field of interest. PREREQUISITE: Permission of instructor.

8701. Advanced Seminar in Geophysics. (1).

8750. Advanced Study in Geophysics (1-9). Independent research in consultation with student's graduate advisor. Report required. Hours and credit to be arranged.

†9000. Dissertation. (1-9).

† Grades of S, U, or IP will be given

DIVISION OF HEALTH ADMINISTRATION, School of Urban Affairs and Public Policy

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PhD (1992), Florida International University [2002]
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PhD (1989), The University of Pittsburgh [2002]

I. The Master in Health Administration degree program educates students interested in preparing for or furthering careers in a variety of health care settings, including hospital, ambulatory care, long-term care, and managed care organizations. The program combines interdisciplinary academic preparation with health industry experience.

II. MHA Degree

A. Program Admission

Applicants must receive favorable endorsement from the health administration faculty. Admission will be based on applicable test scores (Graduate Record Examination [GRE] or Graduate Management Aptitude Test [GMAT]); undergraduate grade point average; previous education and/or experience; and an ability to articulate career goals and education objectives via a letter of intent. Two letters of recommendation are also required, one of which should be from a professor or instructor familiar with the student's prior academic history and abilities.

B. Program Prerequisites

Students are accepted from all undergraduate disciplines and professional areas; however, the program determines if students must complete up to nine hours of prerequisite course work before being fully admitted into the program.

C. Program Requirements

The student is required to complete a minimum of forty-eight (48) semester hours. Forty-two (42) hours are taken in the core curriculum (with a

minimum grade of at least "3.00" in each course) and six (6) hours of electives chosen in consultation with an advisor. The six (6) hours of electives allow the student to extend basic knowledge gained in the core curriculum and can include such areas as health administration, economics, marketing, finance, public policy, public administration, and management.

The comprehensive examination must be successfully completed during the semester in which the student expects to graduate.

D. Non-Degree Seeking Students

If a student has taken graduate courses at The University of Memphis as a non-degree-seeking student, the student may apply a maximum of 9 credit hours toward his/her degree requirements. The grade in each course applied must be at least a "3.00." The appropriate academic coordinator must approve all course work taken as a non-degree-seeking student.

HEALTH ADMINISTRATION (HADM)

CORE CURRICULUM

6101. Health Systems. (3). (POLS 7-8621, HADM 7-8101). Analysis of health and medical care systems with reference to public, private, and voluntary agencies at local, state, regional, and national levels orient administrators to health and medical care systems with which they may work.

7102-8102. Health Administration Law and Ethics. (3). Overview of private health law, including professional liability, the relationship of physician and patient, reform of tort system for medical injuries, health care institutions, and access to health care. Introduction to ethical theories and principles; application to profession of health administration.

7103-8103. Health Planning. (3). (POLS 7-8622). Application of strategic planning and marketing concepts and techniques to health care sector; focus on strategy formation, strategic planning process, and marketing management; special emphasis on distinctive characteristics of marketing in health care organization. PREREQUISITE: HADM 6101 or permission of graduate coordinator.

7105-8105. Government Regulation of Health Services. (3). (POLS 7-8624). Health care regulation, including quality, establishing personhood and individual autonomy, end of life and beginning of life decisions, antitrust, health care financing, and cost control.

7106-8106. Health Services Research (3). (POLS 7-8106). Issues and techniques in data collection for design and implementation of independent research projects; logic of conducting health services research, measurement, ethical considerations, logic of sampling, various methods of collecting data for health services research, and writing research proposal; introduction to program evaluation and specific quantitative decision-making techniques; overview of epidemiological concepts and techniques. PREREQUISITE: POLS 6101 or permission of graduate coordinator.

7107-8107. Health Ethics. (3). Introduction to ethical theories and principles; application to profession of health administration.

7108-8108. Health Administration I. (3). Introduction to health care financial management. Basic topics addressed are discounted cash flow analysis, financial risk, long-term debt financing, equity financing, cost of capital, capital structure decisions, capital budgeting, and risk analysis. PREREQUISITE: ACCT 7000 or equivalent.

7109-8109. Health Administration Information Systems. (3). Overview of role of health information systems in the health delivery arena. Topics include systems theories and methodologies; information technologies; strategies and methodologies for health management information systems planning, design, and implementation; health decision support systems; strategic planning and health information resource management; total quality management. PREREQUISITE: HADM 6101.

7110-8110. Health Management Leadership. (3). Capstone course; synthesis of theories, strategies, and systems of managing and leading health care organizations; emphasis on team leadership skills, utilization and outcome analysis, change strategies, and planning. PREREQUISITE: 39 hours in health administration courses or permission of graduate coordinator.

7116-8116. Administration of Health Services Organizations. (3). Introduction to analysis of administrative practices in health services

organizations: examines leadership roles, analyzes impact of professional roles on process within the organization, examines evolution of organizational design, appraises accountability relative to public trust.

7190. Internship in Health Administration I. (3). Participation in a field experience program, including a written report critically describing the student's responsibilities. Field experience may result from a supervised internship in cooperating public and non-profit organizations or from an appropriate administrative experience if the student is employed in a public or non-profit organization. PREREQUISITE: Successful completion of a minimum of 21 hours in the Health Administration program and permission of graduate coordinator.

7208-8208. Health Care Administration II. (3). Overview of techniques for financial management in health care setting. Topics include revenue sources and mix; capital budgeting; cash, debt, property, and internal services management; business plan development. PREREQUISITE: HADM 7108 or FIR 7070.

7605-8605. Human Resources Administration. (3). (PADM 7-8605). Policies, methods, and techniques utilized in public and health organizations; special attention is given to problems reflecting contemporary demands upon human resource systems, capacity to diagnose problems, select the most effective means of addressing them, and plan appropriate courses of action developed through case studies.

OTHER CORE COURSE REQUIREMENTS ARE: ECON 7710 and POLS 7213. See appropriate department listing for course descriptions.

ELECTIVES

7111-8111. Issues in Health Services Administration. (3). (POLS 7-8627) Seminar for discussion of issues affecting administrators of health services organizations; includes issues such as right to die, responsibility for health, access for underserved populations, organ transplantation. PREREQUISITE: Permission of graduate coordinator.

7113-8113. Managed Health Care. (3). Role of health service administrator in a managed care organization (MCO); theories of negotiation, incentives structure, pricing, and information systems applied to practical management situations for the MCO administrator; issues in public/private managed care markets addressed in class lecture, discussion, and group/individual projects.

7114-8114. Long-term Care Administration. (3). Overview of the continuum of long-term care (LTC) services; topics include philosophy and history of LTC, demographic and epidemiological determinants of LTC, management concerns in the continuum of LTC, regulation of LTC facilities, financing of LTC services, and the future of LTC. PREREQUISITE: Permission of graduate coordinator.

7115-8115. Public Health Systems. (3). Introduction to analysis of public health systems in the US: examines inner mechanisms of public health system; analyzes relationships between public and private health care delivery systems; reviews public health system's roles, themes, and paradigms to improve systems; explores future challenges.

7117-8117. Ambulatory Practice Management. (3). Examines environmental context, financial management, operations management, human resources management, planning and marketing, and strategic management within the variety of ambulatory settings.

7120-8120. Independent Study. (3). Independent investigation of research problems or directed readings in selected area of health administration. PREREQUISITE: Permission of graduate coordinator.

7191. Internship in Health Administration II. (6). Participation in a field experience program, including a written report critically describing the student's responsibilities. Field experience may result from a supervised internship in cooperating public and non-profit organizations or from an appropriate administrative experience if the student is employed in a public or non-profit organization. PREREQUISITE: Successful completion of a minimum of 21 hours in the Health Administration program and permission of graduate coordinator.

7701-7710. Special Topics in Health Administration. (1-3). Intensive study of selected topics in health administration. May be repeated for a maximum of 6 hours. PREREQUISITE: Permission of graduate coordinator.

†7703. **Reading for Comprehensives.** (3). Arranged on an individual basis for graduate students in health administration only. **PREREQUISITE:** Completion of degree requirements or in the last two semesters of program.

†7996. **Thesis.** (1-6). The student must write and defend satisfactorily a thesis on a subject approved by the major professor.

† Grades of S, U, or IP will be given

HISTORY

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Interim Chair

JAMES BLYTHE, PhD
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MEMBERS

- CALVIN H. ALLEN, JR., *Associate Professor*
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- D'ANN R. PENNER, *Assistant Professor*
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ADJUNCT MEMBERS

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I. The Department of History offers programs of study leading to the Master of Arts degree and the Doctor of Philosophy degree with a major in History. A concentration in Ancient Egyptian History is available.

II. MA Degree Program

The MA program of study in history is a flexible one that prepares students for a variety of careers. Students who regard the MA as a terminal degree normally elect to fulfill its requirements by 33 hours of course enrollment without writing a thesis. Most of these students go on to teaching positions on the secondary and community college level; a smaller number enter government service at all levels; and some secure specialized positions in business, industry, and journalism. Those students preparing for teaching on the university level or related careers in research and writing should look upon the MA program as preparation for advanced graduate study. They are thus strongly urged to fulfill the requirements of the MA program by the preparation of a thesis.

A. Program Prerequisites

The student is required to have a minimum of 18 semester hours in undergraduate history with a minimum GPA of 3.0 on a 4-point scale in all undergraduate history courses. In special cases an exception may be made with the approval of the Graduate Coordinator in History. The department will normally consider for admission only students with a GRE verbal score of at least 450 and quantitative and analytical scores acceptable to the department, or an MAT score of at least 45. In unusual circumstances we may admit a promising student who does not fully meet all of the requirements.

B. Program Requirements

1. A total of 33 hours for the student who elects not to write a thesis.
2. A total of 30 hours for the student who elects to write a thesis, with 6 hours of credit being assigned to the thesis.
3. No more than 9 hours may be taken at the 6000 level.
4. History 7000, a History 7070 seminar, and at least 12 hours for students writing a thesis (this includes 6 hours of 7996 thesis credit) or 15 hours (for non-thesis students) from 7011, 7012 (3 hours maximum), and 7120 through 7980. All students who do not write an MA thesis are required to complete at least one additional 7070 seminar in their 15-hour requirement.
5. Normally 6 hours may be taken in a field outside history, with the approval of the student's advisor and the Coordinator of Graduate Studies. Under special circumstances students may petition for up to an additional 6 hours.
6. No more than 21 hours may be taken in United States History, European History, or any one field of history, such as Ancient History.
7. A comprehensive examination over course work given by a committee chosen by the Graduate Advisor and the student.
8. Thesis approval by a department committee headed by the faculty member who directed the preparation of the thesis.

C. Concentration in Ancient Egyptian History

Beyond the core requirements, students choosing this concentration must take HIST 6058 plus nine (9) hours (if writing a thesis) or fifteen (15) hours (if not writing a thesis) of MA level courses with a focus on ancient Egypt. Students will also take two semesters of basic Middle Egyptian (ARTH 7115 and 7116, which are required but will not count toward the degree), plus two more semesters of readings from ancient Middle Egyptian texts.

III. PhD Degree Program

The Department of History also offers a program of study built upon the MA degree leading to the PhD degree. The program is designed to provide wide knowledge in three fields, more intensive preparation in a fourth field, and professional competence in original research and writing that will prepare the student for teaching and research in higher education or for a career in government, business, library service, and other research-related fields.

A. Program Admission

We normally evaluate applicants for the PhD program once each year, in March, for admission in the Fall semester. Although the Graduate Studies Committee may consider the application of a promising student at another time, February 15 is the deadline by which we must receive all the application materials of anyone who wishes to be considered for an assistantship. We will consider applications according to the following criteria:

1. A minimum of 24 graduate hours in history with at least a 3.25 GPA (on a 4.0 scale) from an accredited institution. An MA in history is strongly recommended.
 2. GRE verbal score of at least 500, with a quantitative and analytical score acceptable to the department.
 3. A 750-1000 word "Statement of Purpose," in which the applicant states educational goals, anticipated fields of study, and general research interests. In this statement, the candidate will be expected to demonstrate some familiarity with the history department's program.
 4. Three letters of recommendation.
- All application materials will be considered by the Graduate Studies Committee, with input invited from department members who might serve on the applicant's advisory committee. Applicants will also be considered automatically for a graduate assistantship at this time.

Admission decisions will be made by April 1. Limited departmental resources may require that the department limit the number of new candidates admitted to the program.

B. Advising:

Students admitted into the PhD program in history will be advised by the Coordinator of Graduate Studies when they first enroll. During the first semester enrolled each student will choose an advisory committee to be composed of a major professor with full graduate faculty rank and at least two other faculty members. This committee assists the student in determining such matters as fields of study, the choice of courses, acceptance of transfer credit, and acceptance of credit from the master's degree. All committee decisions will be in writing with copies to the student and to the Graduate Coordinator.

C. Foreign Language

The student must demonstrate reading proficiency in one foreign language directly related to the dissertation field. Proficiency will be demonstrated by the student's ability to read and interpret a selection from a historical work or source assigned by the dissertation committee. At the option of the student's dissertation director, the student may be required to demonstrate reading knowledge in two or more foreign languages.

D. Fields of Study

The student will choose, in consultation with the advisor, four fields of study. One will be designated the dissertation field. As determined by the advisory committee, a student will complete a minimum of 18 semester hours of credit in the major field, plus 12 hours of dissertation. In each of the three minor fields, the student will complete a minimum of 12 hours of credit. Dissertation fields are offered in United States before 1877, United States after 1877, Ancient World, Britain, and Modern Europe, with minor fields in (in addition to the above) Medieval-Renaissance Europe, Early Modern Europe, Latin America, Africa, China and Japan, Russia, and Near East. Normally a dissertation in Ancient History must be in the area of Egyptology. The primary focus of at least one minor field must be on a geographical region different from that of the major field. With that restriction, a student may petition the Graduate Studies Committee for a field or fields not listed in the official list if the prospective field advisor agrees and the student's advisory committee approves. Furthermore, if a student's major field embraces separate regions or is conventionally divided into separate fields (such as Ancient or Medieval-Renaissance), it may be subdivided into no more than two separate fields. With the approval of the Graduate Studies Committee, one field may be taken in another department or may be interdisciplinary, including courses from at least three departments (two in the case of Egyptology). No course may be used to fulfill the requirement for more than one field. Upon approval of a petition to the Graduate Studies Committee from both the student and a prospective dissertation director, a dissertation may be completed in a field that is not normally a dissertation field.

E. Concentration in Ancient Egyptian History

Students choosing this concentration will take at least 12 hours of courses in the dissertation field that focus on ancient Egyptian history, plus a maximum of 12 hours of dissertation. Students will be expected to deepen their proficiency in Middle Egyptian and to acquire grounding in late Egyptian (2 semesters). Reading knowledge of French and German will be required before students will be allowed to take research seminars or write the dissertation.

F. Course Requirements

A student must complete a minimum of 60 semester hours of graduate course work beyond the bachelor's degree. In addition, the student must complete 12 hours of History 9000 (Doctoral Dissertation), for a minimum total of 72 graduate credits. No more than 12 hours of dissertation credits will be counted toward the degree. At least 36 hours of regular course work must be taken in residence at The University of Memphis and be distributed among the fields of study in a way best suited to prepare the student for comprehensive examination. At least 12 hours of this enrollment must be in research seminars. Students who complete a master's thesis in history may count it as one of these seminars. History 8000 and History 8011, or their equivalents, are required of all students. History 8012 (Directed Readings) may be repeated for a total of 6 hours of credit, with an additional 6 hours permitted by petition to the Graduate Studies Committee. At least 39 hours of the 60-hour requirement must be completed at the 7000/8000 level. With the approval of the advisory committee, up to 24 hours of course work from the master's degree, or other graduate coursework completed before admission to the PhD program, may be counted toward the 60 credits. A student who makes a grade lower than B in more than 6 hours of course work will be dropped from the PhD program.

G. Comprehensive Examination

When the course work has been essentially completed, the language requirement satisfied, and other foregoing requirements met, the student will take a Comprehensive Examination over all fields. The examination will be given by a Comprehensive Committee selected by the advisor and student and approved by the Graduate Studies Committee. The Comprehensive Committee should be composed of one faculty member from each minor field and two faculty members from the dissertation field. On the written part of the examination, six hours will be allotted to the dissertation field and four hours to each of the minor fields. A student may retake any part of the examination not passed, but failure after two attempts in two or more parts of the examination will result in automatic failure of the examination. If all parts are passed, the Comprehensive Committee may

elect to waive the oral portion of the examination. Otherwise, the oral examination will be completed within two weeks after the last written examination (in exceptional circumstances the Comprehensive Committee may extend this period). The Comprehensive Committee will then decide whether, with the approval of at least four of the five members, the student should be promoted to late doctoral status or dropped from the program. Upon successful completion of the comprehensive examination, the coordinator of graduate studies will notify the Graduate School of the student's late doctoral status.

H. Dissertation

To complete the requirements for the PhD in History, the student must prepare a dissertation based on a substantial amount of original research and submitted in the acceptable form. The dissertation topic will be determined by the student in consultation with a faculty member in the dissertation field who agrees to direct the research. Formal approval of the dissertation will be given by a Dissertation Committee of at least five members, chaired by the director and at least two other members with full graduate faculty status. Final approval is given by the Graduate Studies Committee.

HISTORY (HIST)

6020. Internship in History. (3-12). Supervised internships working with various governmental agencies, private foundations, or businesses of interest to historians. May be repeated for a maximum of 12 hours credit. **PREREQUISITE:** Permission of department.

6022. Oral History. (3). Applied history covering oral history theory, research, and interviewing procedures.

6050-69. Special Topics in History. (1-3). Intensive study of selected topics in History. Topics are announced in *Schedule of Classes*.

6126. Victorian and Edwardian England. (3). Social, political, and cultural adjustments of England to the experience of industrialization in nineteenth and early twentieth centuries.

6145. History of Modern Germany. (3). Germany from the origins of the unification movement in the Napoleonic Era through the Second World War.

6160. Russia to 1917. (3). Russia from earliest times to 1917, with special emphasis on the rise of serfdom and autocracy and the evolution of the Revolutionary Movement.

6162. History of the Soviet Union. (3). The 1917 Revolution and the major developments in government economy, cultural and social life, and international affairs that followed.

6200. History of Spain. (3). Spanish institutions, culture, and politics from ancient times to the present.

6240. History of Mexico. (3). Political, economic, social, and cultural development of Mexico from ancient times to the present.

6260. The World Since 1945. (3). Global, ideological, economic, and political developments since World War II; emphasis on rising affluence of industrial free market, movement of former colonies to independence, and growth in diversity among the Soviet bloc nations.

6272. Modern Middle East. (3). Political, diplomatic, social, and religious developments in the Middle East from 1800 to present.

6273. Islamic Egypt. (3). Political, economic, social, and cultural development of Egypt from Islamic conquest (640 A.D.) to the present.

6285. Africa: Antiquity and Tradition. (3). African history from ancient civilizations to Sudanic kingdoms; social, political, economic, intellectual, and cultural developments of Africa from the earliest human records to era of the great states of the western Sudan; emphasis on African ecumena, traditions of the major regions of the continent.

6286. Africa: Continuity and Flux. (3). African history in the period of globalization, from the slave trade to colonialism; social, political, economic, intellectual, and cultural developments of Africa; Africa's involvement in the Atlantic world; coverage of the major regions of the continent, with emphasis on precolonial topics.

6287. Africa: Twentieth Century. (3). Colonialism and nationalism in Africa; history of colonial and post-independence periods, with a focus on examining major issues in modern African history from modern African intellectual perspectives; emphasis on nationalist and pan-Africanist analytical frameworks.

6292. History of Modern China, 1800 to the Present. (3).

6294. History of Modern Japan, 1800 to the Present. (3).

6295. Intellectual History of East Asia since 1800. (3). Evolution of modern Chinese and Japanese thought.

6320. Ancient Near East. (3). From the beginnings in Mesopotamia down through the great "Oriental Empires" (Assyria, Babylon, Persia).

6321. The Greek Experience. (3). Politics, society, and culture in ancient Greece to Alexander the Great.

6322. The Roman World. (3). Hellenistic kingdoms and the Roman Empire.

6323. Egypt of the Pharaohs. (3). A historical survey of ancient Egyptian civilization, covering major political and social developments and topics such as religion, writing, and literature, Egypt's relations with the rest of Africa, and sample problems that illustrate how Egyptologists approach the past.

6361. History of the Byzantine Empire. (3). Byzantine or East Roman Empire from 330 to 1453 and its influence on the Slavic, Turkic, and Islamic peoples.

6372. High Middle Ages. (3). Summary of the Early Middle Ages, economic, technological, cultural, intellectual, and religious expansion after 1000, courtly love, Romanesque and Gothic art, limited government, church and state conflicts, reason vs. revelation, universities, scholasticism, women, Judaism, science, Franciscans, Heretics, life of ordinary people, disasters of the fourteenth century, roots of the Renaissance.

6380. Renaissance Europe, 1300-1520. (3). Rise of humanism during fourteenth century disasters; intellectual, economic, social, cultural, religious, and artistic developments of fourteenth through sixteenth century, emphasizing Italy, especially Florence; women, life of ordinary people, guilds, republicanism and despotism, neoplatonism, Christian and civic humanism, Northern Renaissance. Is the Renaissance revolutionary or a development of medieval culture?

6390. Europe in the Age of the Reformation. (3). Characteristic political, social, economic, intellectual, and cultural developments and the religious conflicts of the late fifteenth and sixteenth centuries.

6401. Europe in the Age of the Baroque. (3). Political crises, the development of monarchical absolutism, the rise of modern science, and cultural synthesis in the seventeenth century.

6440. Era of the French Revolution. (3). Old Regime, origins and development of Enlightenment thought, and revolutionary and counter-revolutionary movements in 18th century Europe.

6453. Europe, 1815-1914. (3). Note: Students who have received credit for HIST 6451 or 6452 will not be allowed credit for HIST 6453.

6461. Europe, 1914-1945. (3).

6620. Colonial America to 1783. (3). Political development and economic, social, and cultural institutions of English colonies in America, including origins and conduct of American Revolution.

6630. The New Nation, 1783-1815. (3). Note: Students who have received credit for HIST 6641 will not be allowed credit for HIST 6630.

6640. Jacksonian America, 1815-1850. (3). Note: Students who have received credit for HIST 6642 will not be allowed credit for HIST 6640.

6670. Civil War and Reconstruction, 1850-1877. (3). Note: Students who have received credit for HIST 6660 will not be allowed credit for HIST 6670.

6680. Emergence of Modern America, 1877-1914. (3).

6701. The United States, 1914 to the Second World War. (3).

6702. The United States, from the Second World War. (3).

6823. American Labor History. (3). Historical development of the labor movement in the United States; emphasis on social, economic, and political trends related to the labor movement.

6824. Business History. (3). Historical development of business in the United States; attention to social, economic, and political trends related to American business communities.

6831. History of American Family. (3). Analysis of changes in family size and structure and relationships between family and society from colonial times to present.

6851. History of Women in America. (3). Economic, political, social, and intellectual history of women in the English American colonies and the United States.

6861. Parks/People/Public Policy. (3). A comparative study of the history and administration of public land areas in the United States and of American conservation.

6863. History of Childhood in America. (3). Historical consideration of children and childhood in American society from early 17th century to present.

6871. United States Urban History. (3). Development of American cities, including formation of local social, economic, and political institutions and impact of urbanization on US.

6881. African American History. (3). History and culture of African Americans in light of their experiences; aspects of African American life and attitudes of dominant society within which African Americans lived; ways African American men and women shaped and nurtured their own lives, culture, and history in US.

6882. Civil Rights Movement in the US Since 1930. (3). Struggle for African-American equality, with emphasis on key civil rights issues, events, leaders, and strategies.

6941. History of the American Indian. (3). Role of the Indian in American history.

7000-8000. Introduction to Historical Research and Writing. (3). Mechanical techniques of historical composition, the nature and use of various kinds of historical source materials, bibliographical aids, and methods of historical synthesis. Required of all history majors.

7011-8011. Philosophy of History. (3). Speculative philosophy of history and recent problems in analytical philosophy of history.

7012-8012. Directed Readings. (1-3). Arranged on an individual basis between a student and a particular instructor, whose permission is required for scheduling the course. Master's candidates may take the course for 3 hours credit. May be repeated for a total of 6 hours credit by students admitted to doctoral program.

7020-8020. Seminar for Teaching Assistants. (3). Overview and practical demonstrations of art of teaching history. Required of all graduate assistants.

†7021-8021. Colloquium for Graduate Assistants. (3). Supervision of and consultation with graduate assistants. For history students only. **PREREQUISITES:** HIST 7020-8020 and appointment as graduate assistant. May be repeated.

†7022-8022. Teaching Skills for Graduate Assistants. (3). Develop skills in classroom teaching and assemble a teaching portfolio. May be repeated for up to 12 credits. May be restricted to graduate assistants.

7030-39-8030-39. Topics in History. (3). Topics within periods or problems that cross periods or subject areas. May be repeated when topic varies.

7070-8070. Research Seminar. (1-3). Emphasis on original research and writing in topics drawn from the fields generally covered by the Studies courses. May be repeated for credit when topic varies. **PREREQUISITE:** HIST 7000.

The following Studies courses consist of readings and reports to survey the important literature on a period or its principal divisions. May be repeated with departmental permission.

7120-8120. Studies in English History. (3).

7160-8160. Studies in Russian History. (3).

7210-8210. Studies in Latin-American History. (3).

7270-8270. Studies in Near Eastern History. (3).

7280-8280. Studies in African History. (3).

7290-8290. Studies in Asian History. (3).

7320-8320. Studies in Ancient History. (3).

7370-8370. Studies in Medieval-Renaissance European History. (3).

7400-8400. Studies in Early Modern European History. (3).

7440-8440. Studies in Modern European History. (3).

7650-8650. Studies in US History before 1877. (3).

7680-8680. Studies in US History after 1877. (3).

7883-8883. Studies in African American History. (3).

7980-8980. Thematic Studies in American History. (3).

†7990-8990. **Reading for Comprehensives. (1-6).** Arranged on an individual basis for history students only.

†7996. **Thesis. (1-6).** The student must write and defend satisfactorily a thesis on a subject approved by the major professor.

†9000. **Doctoral Dissertation. (1-12).** No more than 12 hours may be applied toward degree. **PREREQUISITE:** Admission to candidacy.

†Grades of S, U, or IP will be given

MATHEMATICAL SCIENCES

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XIAOPING XIONG,

PhD (1993), Purdue University [2002]

- I. The Department of Mathematical Sciences, which includes the Division of Computer Science, offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees with a major in Mathematics. In conjunction with the Fogelman College of Business and Economics, the department also offers an interdisciplinary MS degree in Electronic Commerce.

The areas of concentration for the MS degree are Applied Mathematics, Bioinformatics, Computer Science, Mathematics, and Statistics. Within the MS degree, students may complete up to twelve semester hours in a collateral area approved by their advisor.

The areas of concentration for the Doctor of Philosophy degree are Applied Statistics, Computer Science, and Mathematics.

The Division of Computer Science administers the Computer Science and Bioinformatics concentrations. Through the College of Arts and Sciences, it also administers the MS in Electronic Commerce.

II. MS Degree Program

A. Program Prerequisites

1. GRE scores are required and are an important factor for admission.
2. Two letters of recommendation
3. A minimum score of 550 on the TOEFL or 210 on the computer-based TOEFL (for students whose native language is not English)
4. An undergraduate degree with a minimum GPA of 2.5 on a 4.0 scale

B. Program Requirements

1. At least 24 semester hours at the 7000 level
2. A passing grade on a written comprehensive examination
Each of the concentration areas has additional program prerequisites and requirements, which are given below.

Mathematics Concentration

1. Prerequisites

An undergraduate degree with a major in mathematics or equivalent training.

2. Requirements

- a. Satisfactory completion of 33 semester hours of graduate course work in a program approved by the department.
- b. Satisfactory completion of at least 21 semester hours of graduate course work in mathematics (A typical program will include at least two of the following two-course sequences: MATH 7350-7351, 7261-7262, 7411-7361).

Applied Mathematics Concentration**1. Prerequisites**

Adequate undergraduate preparation (roughly equivalent to a mathematics major), which includes work in partial differential equations and linear algebra.

2. Requirements

Satisfactory completion of at least 33 semester hours of graduate course work approved by the department. The course work should include basic training in Differential Equations, Optimization Techniques, Scientific Computing, and Mathematical Modeling. Sensible alternative programs, depending on the student's motivation and goals, can be considered.

Computer Science Concentration

NOTE: This concentration is administered by the Computer Science Division.

1. Prerequisites

a. One year (8 semester hours) of calculus and one semester (3 semester hours) of linear algebra (Students without the calculus and/or linear algebra prerequisites will be considered on an individual basis and if admitted must correct the deficiency within the first semester.)

b. Satisfactory completion of the following courses (or their equivalents): COMP 1900, 2150, 3160, 3410, 4030, 4040, 4270; MATH 2701. (None of these courses may be used to fulfill degree requirements.)

2. Requirements

a. Satisfactory completion of 34 semester hours of graduate course work approved by the department.

b. Satisfactory completion of a minimum of 22 semester hours of computer science courses approved by the department. In addition to COMP 6601, they must include at least six different courses, selected in pairs from three of the following areas:

- 1) Algorithms and Complexity: COMP 7295, 7601, 7713, 7715, 7717, 7290;
- 2) Programming and Software Systems: COMP 6041, 6081, 7041, 7081, 7083, 7085, 7711;
- 3) Database Systems: COMP 7115, 7116, 7117, 7118, 7120;
- 4) Data Communications and Networking: COMP 7120, 7311, 7313, 7327;
- 5) Parallel Computing: COMP 7272, 7274, 7290;
- 6) Artificial intelligence: COMP 6720, 6730, 7282, 7517, 7720, 7740, 7750, 7760;
- 7) Complex systems and cognitive science: COMP 7515, 7517, 7601, 7740, 7760, 7820.

Bioinformatics Concentration

NOTE: This concentration is administered by the Computer Science Division.

1. Prerequisites

a. MS or PhD (or equivalent) in the Biological Sciences (preferably in the areas of Biochemistry or Molecular Biology), with a minimum GPA of 3.0, and including the following courses (or their equivalents): Molecular Genetics (MMCS 6470), Biochemistry I and II (MMCS 6511 and 6512), and the corresponding laboratory courses.

b. Satisfactory completion of the following courses (or their equivalents): Introductory Programming course COMP 6002 (or COMP 1900 and 2150), Advanced Data and File Structures (COMP 3160), Calculus II (MATH 2321), Linear Algebra (MATH 3242), and Discrete Mathematics (MATH 2701).

2. Requirements

a. Candidates entering with a prior MS degree need satisfactory completion of 33 credit hours of graduate course work as approved by the Program Advisor.

- 1) [Life Sciences] 6 credit hours in Life Sciences chosen from: Cell and Molecular Biology (MMCS 7131), Advanced Bacterial Genetics (MMCS 7470), Special Topics (MMCS 7700-7720);
- 2) [Life Sciences laboratory] 3 credit hours in Life Sciences laboratory including Research (MMCS 7092);
- 3) [Statistics] 3 credit hours in Statistics chosen from Basic Concepts in Statistical Methods (MATH 6611), Statistical Methods (MATH 6637), Regression Analysis (MATH 7643), or a course on Biostatistics;
- 4) [Computer Science Core] 12 credit hours of Computer Science core including Introduction to Algorithms (COMP 6030), Internet Programming (COMP 6302), Database Systems (COMP 7115), Bioinformatics (COMP 7295);
- 5) [Electives] 6 credit hours of Computer Science and Mathematics Elective courses chosen from: Models of Computation (COMP 6601), Advanced Databases (COMP 7116), Data Mining (COMP 7118), Evolutionary Computation (COMP 7282), Molecular Computing

(COMP 7290), Topics in Algorithms (COMP 7717), Neural Networks (COMP 7740), Control of Autonomous Agents (COMP 7760), Topics in Human-Computer Interaction (COMP 7517), Dynamical Systems (MATH 7901), and Regression Analysis (MATH 7643);

6) [Thesis] 3 credit hours of Master's Thesis (COMP 7996).

b. The following modifications may be made to the requirements upon approval by the Program Advisor:

- 1) Students with sufficient background in Life Sciences may replace the Life Sciences and/or Life Sciences laboratory requirements with courses from the Electives list.
- 2) Candidates with a prior PhD degree are only required to complete 30 credit hours and are not required to complete the Life Sciences requirements (including the Lab), provided they complete 6 hours of Thesis credit. A 6 credit Master's thesis may be replaced by a combination of a 3 credit Master's Thesis and one additional course from the Electives list.

Statistics Concentration**A. Prerequisites**

Three semesters of calculus and one semester of linear algebra.

B. Requirements

1. Satisfactory completion of 30 semester hours of graduate course work with a thesis or 33 semester hours of graduate course work without a thesis in a program approved by the department.
2. Satisfactory completion of the following courses: MATH 7642, 7643, 7647, 7654, 7685, 7762, and either MATH 7645 or MATH 7657, either MATH 7660 or MATH 7670. Graduate students in the Department of Mathematical Sciences may not receive credit for both MATH 6637 and MATH 7643.

III. PhD Degree Programs**A. Admission Requirements**

1. GRE scores are required and are an important factor for admission.
2. Three letters of recommendation
3. A score of at least 550 on the TOEFL, or 210 on the computer-based TOEFL (for students whose native language is not English)
4. An undergraduate degree in an appropriate discipline with a minimum GPA of 2.5 (on a 4.0 scale) or equivalent preparation

B. Program Requirements

1. The doctoral degree program requires satisfactory completion of a minimum of 72 semester hours of graduate credit (a minimum of 36 hours for a student entering with a master's degree from another university). The 72 hours:
 - a. may include a maximum of 12 hours of 6000 level coursework, but must include at least 18 hours of 8000 level coursework;
 - b. may include a minimum of 9 and a maximum of 15 hours of dissertation (9000); and
 - c. must include the satisfactory completion of one of the concentration requirements listed below.
2. Each student must:
 - a. obtain a passing grade on a qualifying examination prior to the end of the first 13 months of study in the program;
 - b. obtain a passing grade on a comprehensive examination;
 - c. complete an acceptable dissertation; and
 - d. pass a final examination given by a committee composed of departmental and university representatives.

Detailed information can be obtained by contacting the graduate coordinator of the department.

Mathematics Concentration

1. Demonstration of reading proficiency in one foreign language, either French, German, or Russian
2. The PhD concentration in mathematics is designed so that students may pursue a traditional degree or may choose a more broadly based program aimed toward a college teaching career. Students may contact the department for more detailed information.

Applied Statistics Concentration

1. Students must complete the following courses: MATH 7-8642, 7-8651, 7-8670, 7-8692, 7-8695, and two courses from MATH 7-8759, 7-8763, 7-8764, and 7-8765. In addition, students are required to give at least two formal presentations through taking MATH 7-8691. NOTE: 7-8695, Bootstrap and Other Resampling Methods; 7-8659, Categorical Data Analysis.
2. Presentation of an acceptable dissertation proposal within six months after passing the comprehensive examination.

Computer Science Concentration

NOTE: This concentration is administered by the Computer Science Division.

1. Satisfactory completion of courses from at least two substantially different areas of computer science. In each area the student must complete a sequence of at least three courses.
2. Presentation of an acceptable dissertation proposal after passing the comprehensive examination.

Computer Science Division

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MS in Electronic Commerce

In addition to the computer science and bioinformatics concentrations in Mathematical Sciences listed above, the Computer Science Division, through the College of Arts and Sciences, offers a graduate program leading to the MS degree in Electronic Commerce. This is an independent interdisciplinary degree jointly offered with the Fogelman College of Business and Economics.

A. Admission Requirements

Admission into this program is competitive. Candidates must submit scores from either the GMAT or the GRE exams, and two letters of recommendation. A minimum undergraduate GPA of 2.5 on a 4.0 scale is required for consideration. International students whose native language is not English must attain a minimum score of 550 (210 computer-based) on the TOEFL exam.

B. Prerequisites

The following courses must be completed either before admission or during the first two semesters of the program:

- Elementary Calculus (MATH1830 or equivalent);
- Discrete Mathematics (MATH2701 or equivalent);
- Management and Organization (MGMT7030 or MGMT3110, or equivalent);
- Marketing Management (MKTG7060 or MKTG3010, or equivalent);
- Knowledge of a higher-level programming language (C or an object-oriented language desirable).

C. Requirements

1. Satisfactory completion of 33 semester hours of course work, including 27 hours of required courses and 6 hours of electives. In addition, five prerequisite courses must be completed either before admission or during the first two semesters of the program.
2. Satisfactory completion of
 - a. COMP 7100, 7105, 7110, 7970, 7115 or ISDS 7605, 6310;
 - b. Two of COMP7118, COMP7120, and COMP7517;
 - c. MGMT 7130 and two technical electives chosen from the following list:

(Note: Students with no background in economics are strongly advised to consider ECON7700 as one of their electives.)

- ACCT7420 - Advanced Accounting Systems
- ACCT7421 - Multi-user Accounting Systems
- ACCT7422 - Accounting System Development
- COMP6081 - Software Development
- COMP6720 - Introduction to Artificial Intelligence
- COMP6730 - Expert Systems
- COMP7116 - Advanced Database Systems
- COMP7282 - Evolutionary Computation
- COMP7311 - Advanced Computer Networks
- COMP7313 - Network Design and Performance Analysis
- COMP7515 - Complex Systems
- ECON7700 - Economics of Electronic Commerce
- ISDS7610 - Systems Analysis and Design
- ISDS7620 - Decision Support Systems and Expert Systems
- ISDS7640 - Information Systems Management and Planning
- ISDS7650 - Global Information Technology and Systems Management
- ISDS7655 - Advanced Systems Analysis and Design
- ISDS7660 - Advanced Networking and Database Management
- ISDS7665 - Advanced Business Computing Environments
- MATH7660 - Applied Time Series Analysis

Or another course approved by the degree's administrative committee.

COMPUTER SCIENCES (COMP)

6001. Computer Programming. (3). Basic concepts in computer programming in BASIC and FORTRAN, including software development cycle, data types, iteration and flow control commands, modular programming, I/O, file processing; basic skills for using operating systems (DOS, VMS), visual basic, computer systems, and network navigation. NOTE: Computer Science majors may not use this course to fulfill degree requirements. PREREQUISITE: MATH 1211.

6002. Accelerated Computer Programming. (3). Principles of style and documentation: specification, algorithms, coding, and step-wise refinement; structured language; modularity; recursive procedures; programming of basic data structures including linked lists, stacks,

queues, trees, and sets; basic sort and search algorithms; hashing. PREREQUISITE: MATH 1321. COREQUISITE: MATH 6701 or 4701.

6003. Computer Organization and Assembly Language Programming. (3). Binary signals, combinatorial and sequential logic networks; computer structure, memory, control, processing, and I/O units; instruction types and execution. Computer machine language: symbolic coding and assembly systems: design, coding, testing, tracing, and debugging. NOTE 1: Computer Science majors may not use COMP 6003 to fulfill degree requirements. NOTE 2: Credit for either COMP 3230 or COMP 3420 precludes credit for COMP 6003. PREREQUISITE: COMP 2150 or 6002.

6005. Web Design and Development. (3). The World Wide Web; hypertext and markup languages; web page design; interactive documents; visualization and cognitive aspects of web page design; search engines; digital libraries. NOTE: This course does not fulfill degree requirements for the computer science concentration. PREREQUISITE: COMP 4001-6001 or permission of instructor.

6011. Advanced Visual Basic. (3). Review of Visual Basic: advanced internet and user interface features and applications; advanced features such as ActiveX, DLL, EXEs; animation and multimedia; database applications. NOTE: This course does not fulfill degree requirements for the computer science concentration. PREREQUISITE: COMP 4001-6001 or permission of instructor.

6014. Introduction to Java Programming. (3). Basic structured programming syntax; internet features; client/server environments and applets/servlets; advanced JAVA features including user interface, JFC widgets and events, SWING; database applications; security; introduction to threading. NOTE: This course does not fulfill degree requirements for the computer science concentration. PREREQUISITE: COMP 4001-6001 or permission of instructor.

6030. Introduction to Algorithms. (3). Asymptotic behavior of programs; basic paradigms in algorithm design: greedy, divide-and-conquer, dynamic programming; analysis of efficiency, and optimality of representative algorithms, including graph, pattern matching, numerical, randomized, and approximation algorithms; approaches to lower bound analysis; basic parallel algorithms. PREREQUISITE: COMP 3160.

6040. Programming Languages. (3). Comparative features, syntax, and applicability of high-level programming languages such as FORTRAN, COBOL, PASCAL, SNOBOL, LISP, ADA, C, and FORTH data types, data structures, and dataflow; procedures, recursion, runtime environment, string manipulation, list processing, array processing, documentation, programming style. PREREQUISITE: COMP 3160.

6041. Introduction to Compilers. (3). Finite state recognizers, lexical scanners, symbol tables, context-free methods such as recursive descent, LL(K), precedence, LR(K), SLR(K); language translation, generation and improvement of machine independent codes, inherited and synthesized attributes syntax directed translation schema. PREREQUISITES: COMP 6003, 6040 and 6030.

6081. Software Development. (3-6). Advanced programming methods: testing, generic libraries, documentation methods; program analysis and design methodologies such as object-oriented, life cycles, metrics, process improvement strategies, personal software process; software quality. PREREQUISITE: COMP 3160, or permission of instructor.

6115. Database Processing and Design. (3). Database processing and architecture; conceptual data modeling and data design; logical data models; relational models, operations and algebra; query languages and SQL; normalization and schema refinement; basic indexing techniques (hashing and B+ trees). PREREQUISITE: COMP 3160, or permission of instructor.

6242. Introduction to Computer Graphics. (3). Characteristics of graphics I/O devices; 2D pictures, scaling, translation, rotation, windowing; drawing histograms, simple maps, block diagrams and flowcharts; curved lines, precision, quantization, interpolation, plotting equations; 3D pictures, scaling, translation, rotation, projections, hidden line problem, non-Euclidean geometry, animation. PREREQUISITE: COMP 3410 or 6003.

6262. Programming in UNIX. (3). Fundamentals of UNIX system and environment including: file system, shell concepts and programming, editors (VI and EMACS), filters (SED, AWK, GREP, SORT), utilities

(MAKE, YACC, LEX), mail facility, communication software, C programming and its UNIX interface, X window system. PREREQUISITE: COMP 2150 or permission of instructor.

6270. Introduction to Operating Systems. (3). Hierarchy of storage devices, I/O buffering, interrupts, channels; multi-programming, processor and job scheduling, memory management: paging, segmentation, virtual memory; management of asynchronous processes: interrupt procedure calls, process state word and automatic switch instructions, semaphores, concurrency; security and recovery procedures. PREREQUISITES: COMP 3160 and either COMP 3410 or EECE 4270.

6272. System Administration. (3). Review of UNIX and operating systems principles; principles and practices of systems administration and management: network file systems, account management; OS installation: startup and shutdown, booting, backup, restore; system administration tools; web administration; duties and responsibilities of a system administrator. PREREQUISITES: COMP 6262 and COMP 6270, or permission of instructor.

6302. Internet Applications and Java Programming (3). Structure of the internet and world-wide web; client-server environments; programming applications in Java and HTML; Java applets and web's cgi scripts; security issues; other large networks. PREREQUISITE: COMP 2150.

6310. Introduction to Computer Networks. (3). Network structure and architecture; network topology: OSI/ISO reference model; physical layer and datalink layer, communications lines; Fourier analysis and synthesis; modulation; transmission media; coding theory; data compression, cryptography, error detection and correction; case studies of LANs: CSMA/CD, token ring, token bus. PREREQUISITES: COMP 2150 and COMP 3410.

6410. Computer Security. (3). Basic issues in computer security: confidentiality, integrity, availability, and trust; basic methods and protocols in cryptography, digital signature, authentication, and bit commitment; security of computer systems, programs, databases, operating systems; secure communication: secure channel, key infrastructure, and certification; security policies, legal and ethical issues; risk management and security administration. PREREQUISITES: MATH 2701 and COMP 4270; or permission of instructor.

6601. Models of Computation. (3). Computer models as a basis of the understanding and analysis of programming: computation and complexity: machine models (finite-state, stack and Turing machines), linguistic models (grammars, lambda calculus and predicate calculi); biologically-inspired models (e.g.: neural nets or genetic algorithms); unsolvability, universality, decidability, and feasibility. PREREQUISITE: COMP 2150, MATH 2701.

6720. Introduction to Artificial Intelligence. (3). (Same as EECE 6720.) Fundamentals of programming in LISP; central ideas of artificial intelligence, including heuristic search, problem solving, slot-and-filler structures and knowledge representation. PREREQUISITE: COMP 4040 or permission of instructor.

6730. Expert Systems. (3). (Same as EECE 6730.) Fundamentals of programming in PROLOG, central ideas of expert system development, including knowledge representation, control structures, tools, knowledge acquisition, and knowledge engineering. PREREQUISITES: MATH 2701 and COMP 4030, or permission of instructor.

6901. Individual Studies in Computer Science. (1-3). Directed individual study of selected areas of computer science. Repeatable by permission to 6 semester hours. PREREQUISITE: Permission of instructor.

†6911. Internship in Computer Science. (1-6). Practical experience in computer science; students are placed with governmental or private organizations; project must be approved and supervised by department faculty; academic credit granted on certification of cooperating agency and acceptance by the supervising faculty of written report. May be repeated for total of 6 semester hours credit. PREREQUISITE: permission of instructor.

6990-6999. Topics in Computer Science. (1-3). Topics are varied and announced in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

7041-8041. Compiler Design. (3). Translation of computer source language including compiling of interpreters, scanning and code generation, for arithmetic and Boolean expressions, arrays, conditional and iterative statements using recursive and nonrecursive compiling techniques; construction of automated compiler given a source language in form of a context-free grammar and a target in the form of actions to be performed when rules of grammar are satisfied. PREREQUISITE: COMP 6041.

7081-8081. Software Development Process Models. (3). Development processes; maturity models; process improvement, metrics (process and product), estimation, management, maintenance; quality assurance; personal and team software process models. PREREQUISITE: COMP 6081, or permission of instructor.

7083-8083. Software Development Methodologies. (3). Description methods for the support of process models; advanced object-oriented analysis and design methods; reuse, testing, adaptive software, software comprehension, understanding, and environments. PREREQUISITE: COMP 6081, or permission of instructor.

7085-8085. Program Comprehension. (3). Cognitive and mental models of how people learn to program and people understand existing large software systems; software environments to assist software developers build, maintain, and evolve software systems; how visualization of software systems aids in program comprehension. PREREQUISITES: COMP 4-6081 or COMP 4-640, or permission of instructor.

7100. Introduction to Electronic Commerce. (3). Technical foundations of electronic commerce, including intranets and extranets and protocols, programming in C++, Java and HTML, client-server environments, webmasters, on-line authoring tools, catalogs, and services. PREREQUISITE: COMP 2150 or knowledge of a high-level programming language.

7105. Contemporary Electronic Commerce. (3). (Same as BA 7105.) Technical and managerial principles of EC, including electronic infrastructure, data transfer, data mining and warehousing, security; impact of EC on resource planning, project development, organization and management of the business environment; new forms of virtual enterprise. PREREQUISITES: COMP 7100 or BA 7100, or permission of instructor.

7110. Advanced Electronic Commerce. (3). (Same as BA 7110.) Advanced concepts and strategies for EC, including implementation platforms, multimedia integration, human-computer interaction, and ethical issues; impact of EC as a force in technology advances, consumer behavior, and changing the nature of the business world. PREREQUISITE: COMP 7105 or permission of instructor.

7115. Database Systems. (3). Review of the relational model; query processing and optimization; physical database design and tuning; transaction processing; concurrency control; crash recovery; database buffer management; database security. PREREQUISITE: COMP 6115, or permission of instructor.

7116-8116. Advanced Database Systems. (3). Advanced data modeling; object-oriented and object-relational databases; indexing of complex data; advanced transaction processing; on-line analytical processing and data warehousing; distributed database processing. PREREQUISITE: COMP 7115, or permission of instructor.

7117-8117. Topics in Database Management Systems. (3). Advanced current research topics in database and information management, with emphasis on nontraditional data and applications. PREREQUISITE: COMP 7116, or permission of instructor.

7118-8118. Topics in Data Mining. (3). Approaches to data mining and knowledge discovery (graphical, statistical, combinatorial, heuristic); classification and clustering; time series analysis; spatial data mining; data mining applications. PREREQUISITE: COMP 3160, or permission of instructor.

7120-8120. Cryptography and Data Security. (3). (Same as ISDS 7670-8670.) Ancient and modern cryptology and ciphers; security problems in computing; basic encryption and decryption; public-key cryptography, notions of security in computing environments; encryption, protocols; security for programs, OS's, data bases, PC's, networks and communication; legal, ethical and human factors in computer security. PREREQUISITE: permission of instructor; MATH 2701 recommended.

7270-8270. Operating Systems. (3). (COMP 7271). Function, structure, and design parameters of computer operating systems; time-sharing, multiprogramming, and multiprocessing considerations; actual operating systems; design methodology and evaluation techniques. PREREQUISITE: COMP 6270.

7272-8272. Parallel Programming. (3). Overview of parallel computer architectures, languages, and programming strategies; overview of parallel machines in operation and case studies of their programming, including massively parallel machines and programming projects. PREREQUISITES: Knowledge of FORTRAN, C, or LISP, and permission of instructor.

7274-8274. Distributed Computing. (3). Algorithms, data structures, programming languages, and strategies for problems using several processors in absence of single central controller; shared variables, message passing, concurrent languages, Petri nets, mutual exclusion, Byzantine agreement, clock synchronization, self-stabilizing systems, abort-commit protocols, network partitioning, leader election, and common knowledge. PREREQUISITE: COMP 6270.

7282-8282. Evolutionary Computation. (3). Computational implementation of biological analogies, such as genetic algorithms, genetic programming, embryonics, evolutionary engineering; representation, fitness functions, fitness landscapes, automatically defined functions; applications to optimization, machine learning, software development. PREREQUISITE: COMP 6601, or permission of instructor.

7290-8290. Molecular Computing. (3). (Same as MMCS 7290-8290). Basics of cell biology and genetics (DNA structure and enzymes, replication and translation); feasible DNA based solution of hard computational problems; issues in the design of molecular computers; foundations of nanotechnology. PREREQUISITE: COMP 4-6030, or permission of instructor.

7295-8295. Introduction to Bioinformatics. (3). Algorithms for problems arising in molecular biology, such as sequence matching, alignment, gene finding, sequence assembly, phylogeny, and structure prediction; internet resources; statistical analysis of DNA, RNA, and protein sequences. PREREQUISITE: COMP 6030, or permission of instructor.

7311. Advanced Computer Networks. (3). LANs; WANs; public networks; ISDN and B-ISDN; internetworking; routing algorithms, congestion control algorithms; queueing models; remote procedure calls; FTAM; telnet; rlogin; electronic mail; news; WWW; distributed applications. PREREQUISITE: COMP 6310.

7313-8313. Network Design and Performance Analysis. (3). Quantitative performance of communication networks (queueing network analysis, bottleneck analysis, service discrimination, monitoring, security); performance tuning; case studies of practical network design issues and solution techniques. PREREQUISITE: COMP 6310, or permission of instructor.

7327-8327. Topics in Network and Internet Security. (3). Concepts of network security; survey of security software packages; security in Java; intrusion-detection systems; current security issues on Internet and electronic commerce. PREREQUISITES: COMP 6310 and 7120, or permission of instructor.

7514-8514. Cognitive Science Seminar. (3). Systematic study of current topics in Cognitive Science; student required to make presentations and prepare research paper or project. No more than 3 hours may be applied to MS with computer science concentration. PREREQUISITE: Permission of instructor.

7515-8515. Seminar in Complex Systems. (3). Systematic study of information processing, broadly construed, natural or artificial, occurring in complex systemic interactions, such as those encountered in dynamical, neural, biological, social, evolutionary, and cyberspatial systems. PREREQUISITES: COMP 6601, or permission of instructor.

7517-8517. Topics in Human-Computer Interaction. (3). Facts, theories, and issues about human sensation, perception, and interaction for developing more ergonomic and human-like computer interfaces; interactive platforms in use or under development. PREREQUISITE: COMP 6002, or permission of instructor.

7601-8601. Topics in Discrete Modeling. (3). Application of computer models to problem solving in natural language processing, decision making, pattern recognition, image processing, and phenomena in

physics, chemistry and biology. PREREQUISITE: COMP 6601 or permission of instructor.

7711-8711. Logic Programming. (3). Theoretical foundations of Prolog, including models of logic programs, answer substitutions, fixpoint semantics, soundness and completeness of SLD-resolution, search procedures, negation as failure, and parallel logic programming. PREREQUISITE: COMP 6711 or COMP 6730, or permission of instructor.

7713-8713. Advanced Algorithms. (3). Advanced methods and data structures in sequential algorithms, including amortized analysis, backtracking, and branch-and-bound, heuristics, randomized algorithms, derandomization, approximation, and approximability; basic parallel models and algorithms, including sorting and searching, numerical, symbolic, and probabilistic algorithms. PREREQUISITES: COMP 6002 and COMP 6030 or permission of instructor.

7715-8715. Computational Complexity. (3). Basic properties of RAM and Turing machine time and space complexity classes; reducibility and completeness, intractable problems and lower bounds, sample of NP-Complete problems, approximation algorithms for NP-hard problems; randomization and probabilistic complexity classes, oracles and relativization; interactive proofs, polynomial-time hierarchy; PSPACE-complete problems. PREREQUISITES: COMP 6601 or permission of instructor.

7717-8717. Topics in Algorithms. (3). Recent developments and practical issues in algorithms and data structures. PREREQUISITE: COMP 7713, or permission of instructor.

7719-8719. Combinatorial Optimization. (3). Computational complexity: reductions, oracles and NP-completeness; five basic problems on convex sets in Euclidean spaces; pivoting, ellipsoid, and basis reductions methods; optimization on graphs; matching and stable set polytopes; algorithms on perfect graphs. PREREQUISITES: COMP 7713 or COMP 7715, or permission of instructor.

7720-8720. Artificial Intelligence. (3). (Same as EECE 7720-8720). Central issues of artificial intelligence, including game playing, planning, machine learning, common-sense reasoning, perception and action; implementations in LISP. PREREQUISITE: COMP 6720.

7740-8740. Neural Networks. (3). (Same as EECE 7740-8740). Learning algorithms for multilayer perceptrons, least-mean squares, backpropagation and its variants, cascade-correlation, other supervised learning algorithms; unsupervised methods, including Hebbian, competitive, and reinforcement learning; applications to associative memories, combinatorial optimization, component analysis, function approximation, pattern classification; theory of neurodynamics, including equilibrium, stability, and computational power.

7745-8745. Computational Intelligence. (3). A dynamics systems perspective on intelligence in computational systems; analysis is strongly biological motivated, including hybrid fuzzy-neuro systems, emergence, and chaos computing; how these components are used for automatic generation of knowledge in computational systems. PREREQUISITES: COMP 6001 or 6002 or permission of instructor.

7750-8750. Logical Foundations of Artificial Intelligence. (3). (Same as EECE 7262-8262). Logical foundations of artificial intelligence, predicate calculus, declarative knowledge, inference, resolution strategies, nonmonotonic reasoning, induction, probabilistic logic, belief, state and change, and intelligent-agent architecture.

7760-8760. Control of Autonomous Agents. (3). Exploration and current applications of nontraditional control methods for design of autonomous agents, both in hardware and software, capable of operating in unusual and complex environments, such as subsumption architectures, adaptive fuzzy systems and software agents; novel learning and action selection paradigms. PREREQUISITE: COMP 6002, or permission of instructor.

7771-8771. Graph Algorithms. (3). Introduction to graphs, algorithms, and complexity; depth first search and breadth first search; algorithms for connectivity, biconnectivity, strong connectivity, minimum cost spanning trees, planarity testing, network flow, and matching; Eulerian and Hamiltonian cycle programs; coloring; approximation algorithms for TSP. PREREQUISITES: COMP 6030, or permission of instructor.

7820-8820. Pictorial Algorithms and Machine Vision (3). Image formation and sensing in vision systems; basic algorithms for processing continuous and discrete images; edge detection; shape detection vs.

brightness, lightness, shading, and color; reflectance maps; stereoscopic systems; pattern classification; representation problems; basic concepts and applications of computational geometry; passive navigation and motion planning. PREREQUISITE: COMP 7713 or permission of instructor.

7901-8901. Individual Studies in Computer Science. (1-4). Directed independent problem research and program design, writing, and documentation in an area selected by student with approval of both adviser and supervising staff members. Repeatable by permission. PREREQUISITE: Permission of instructor.

†7950. Computer Science Seminar. (1). Formal meetings, presentations, and discussions of current topics of interest, including oral and written reports by students defending a master's thesis; participation by students, faculty, and visiting colleagues.

†7960-8960. Seminars in Teaching, Research, and Consulting. (3). Non-traditional setting in which master's students develop skills in areas of teaching, research, and consulting. Required of all graduate assistants in the department.

7970-8970. Electronic Commerce Project. (3). Research for specific projects under the supervision of a faculty member and possibly a liaison from commerce or industry. PREREQUISITE: COMP 7110, BA 7110, or permission of advisor.

7980-8980. Research Seminar. (3). Research for specific projects under the supervision of a faculty member and possibly a liaison from commerce or industry. Each section of this class will be designated for a special area. PREREQUISITE: Permission of project advisor.

7990-99-8990-99. Advanced Topics in Computer Science. (1-3). Advanced topics and recent developments in computer science. Repeatable by permission. PREREQUISITE: Permission of instructor.

†7996. Thesis. (1-6).

†9000. Dissertation. (1-12). Independent research for the PhD degree.

†Grades of S, U, or IP will be given

MATHEMATICS (MATH)

6010-19. Special Topics in Mathematics and Statistics. (1-3). Topics are varied and announced in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

6171. Special Problems in Mathematics. (1-3). Directed individual study in a selected area of mathematics chosen in consultation with the instructor. Repeatable for a maximum of 3 credit hours by permission of the Chair of the Department. PREREQUISITE: Permission of the instructor.

6240. Matrix Algebra. (3). Elementary operations, special classes of matrices, determinants, eigenvalues and eigenvectors, canonical forms, and elementary computer implementation. PREREQUISITE: Knowledge of Fortran and MATH 1910 or 1830.

6242. Linear Algebra. (3). Linear transformations polynomials, determinants, direct-sum decompositions diagonalizable operators, rational and Jordan form, inner product spaces, spectral theorem. PREREQUISITE: MATH 3242.

6261. Abstract Algebra. (3). Rings; integral domains; fields, groups-divisibility theory; real and complex numbers; polynomials. PREREQUISITE: MATH 1920.

6350. Introduction to Real Analysis I. (3). The real number system, functions and sequences, limits, continuity, differentiation; Riemann-Stieltjes integration, series of functions. PREREQUISITE: MATH 2110.

6351. Introduction to Real Analysis II. (3). Integration theory; Riemann and Lebesgue integrals; partial differentiation; implicit function theorem. PREREQUISITE: MATH 6350 or permission of instructor.

6361. Complex Variables. (3). Complex numbers, point sets and mappings; analytic functions; integration. PREREQUISITE: MATH 2110.

6391. Partial Differential Equations I. (3). Laplace transforms; Fourier series; introduction to partial differential equations. PREREQUISITE: MATH 3120.

6392. Partial Differential Equations II. (3). Methods of characteristics; Greens functions; existence and regularity of solutions of boundary value and Cauchy problems. PREREQUISITE: MATH 6391.

6411. Topology. (3). Introductory set theory; metric spaces; topological spaces; mappings; Hausdorff spaces; connectedness, and compactness. PREREQUISITE: MATH 4350.

6701. Mathematics for Computer Scientists. (4). Basic mathematical concepts applied to problem solving in computer science; (di)graphs, trees; enumeration; recurrence relations; induction, basic probability and distributions; integer and modular arithmetic; random number generators; state sets and transition functions, finite-state machines; boolean algebra, and elementary logic. PREREQUISITE: MATH 1710. COREQUISITE: MATH 1910.

6721. Numerical Analysis. (3). Derivation and application of computer-oriented numerical methods for functional approximation, differentiation, quadrature, and the solution of ordinary differential equations. PREREQUISITES: MATH 1920 and knowledge of some structured programming language.

7020-29-8020-29. Special Topics in Mathematics (3).

7235-8235. Combinatorics. (3). (MATH 7793). Principles and techniques of combinatorial mathematics with a view toward applications in computer science; methods of enumeration, matching theory, paths and cycles, planarity, coloring problems, extremal problems. PREREQUISITE: Permission of instructor.

7236-8236. Applied Graph Theory. (3). Applications of directed and undirected graphs to problems in various disciplines: chemistry, computer science, electrical engineering, linguistics, operations research, social sciences. PREREQUISITE: MATH 6242 or permission of instructor.

7237-8237. Graph Theory. (3). Connectivity, Euler tours, and Hamilton cycles, matchings, coloring problems, planarity, and network flows; study of classical theorems due to Brooks, Menger, Kuratowski, Schur, Tutte, and Vizing. PREREQUISITE: MATH 6242 or permission of instructor.

7261. Algebraic Theory I. (3). Studies in group theory and ring theory, including Sylow theory and factorization theory. PREREQUISITE: MATH 6261.

7262. Algebraic Theory II. (3). A continuation of Math 7261. Studies in field theory and modules, including free algebras, Galois theory, tensor products. PREREQUISITE: MATH 7261.

7290-99-8290-99. Topics in Algebra. (3). Topics are varied and announced in *Schedule of Classes*. PREREQUISITE: Permission of instructor.

7311-8311. Topics in Analysis. (1-3). Repeatable by permission. PREREQUISITE: MATH 7350.

7321. Modeling and Computation. (3). Introduction to process of formulating, solving, and interpreting mathematical models of real phenomena; both formal analysis and numerical techniques for variety of models. PREREQUISITE: MATH 3120, 6721.

7350. Real Variables I. (3). s-algebra, outer measure, Lebesgue measure, measurable functions, differentiation, absolute continuity, L_p-spaces. PREREQUISITE: MATH 6351.

7351. Real Variables II. (3). Metric spaces, Baire category theorem, Hahn Banach theorem, uniform boundedness principle, closed graph theorem, general measure, signed measures, Radon-Nikodym theorem, product measures, Fubini theorem. PREREQUISITE: MATH 7350.

7355-8355. Functional Analysis I. (3). Vector spaces, Banach spaces, Hilbert spaces; linear functionals and operators in such spaces; spectral theory. PREREQUISITE: MATH 7350.

7356-8356. Functional Analysis II. (3). A continuation of MATH 7355-8355. PREREQUISITE: MATH 7355-8355.

7361. Complex Analysis. (3). Analytic functions, powerseries, mapping properties, complex integration, Cauchy's theorem and its consequences, sequences of analytic functions. PREREQUISITE: MATH 6351.

7371. Calculus of Variations. (3). Introduction to calculus of variations, Euler-Lagrange equations, and optimization in infinite dimensional spaces. Applications could include various topics in science, engineering, economics, or geometry, such as ground state density theories, Dirichlet's principle and differential equations, theory of least action, depending on interests of class. PREREQUISITE: Permission of instructor.

7375. Methods of Mathematical Physics I. (3). Vector spaces, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. PREREQUISITE: MATH 3120, 4242, and 4350 or permission of instructor.

7376. Methods of Mathematical Physics II. (3). Complex variables, asymptotic expansions, special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. PREREQUISITE: MATH 7375 or permission of the instructor.

7393-8393. Differential Equations and Applications. (3). Basic concepts in ordinary and partial differential equations (possibly functional or stochastic differential equations); existence, uniqueness, continuous dependence theorems. Application areas could include diffusion, wave propagation, population dynamics, neural networks, mathematical biology and ecology, quantum theory, kinetic theory, depending on interests of class. PREREQUISITE: MATH 3120 or consent of instructor.

7395-8395. Theory of Differential Equations. (3). Qualitative aspects of linear and nonlinear differential equations including asymptotic behavior and regularity; geometric, functional analytic, and harmonic analytic methods. The asymptotic could include ergodic limits and chaos. The regularity might range from analyticity to discontinuous solutions (shocks, liquid crystals etc.). PREREQUISITES: MATH 6350 and 6242.

7411. Point Set Topology. (3). An axiomatic approach to compactness, separability, connectedness, metrizable and other topological properties. PREREQUISITE: MATH 6411.

7721. Advanced Numerical Analysis. (3). A continuation of Mathematics 6721; specialized methods and techniques in field of numerical analysis. PREREQUISITE: MATH 6721.

7821-8821. Special Problems in Mathematics. (1-3). Directed individual study in a selected area of mathematics chosen in consultation with the instructor and the student's advisor. Repeatable by permission. PREREQUISITE: Permission of the instructor.

7921-8921. Special Problems in Differential Equation. (1-3). Repeatable by permission. PREREQUISITE: MATH 7393.

7922-8922. Special Problems in Applied Mathematics. (1-3). Repeatable by permission. PREREQUISITE: Permission of the instructor.

†7960-8960. Seminars in Teaching, Research, and Consulting. (3). Non-traditional setting in which master's students develop skills in areas of teaching, research, and consulting. Required of all graduate assistants in the department.

7995. Project in Applied Mathematics. (1-3). Mathematical modeling problem related to science or industry, selected in consultation with a faculty advisor, and leading to final report. Repeatable by permission. PREREQUISITE: MATH 7321.

†7996. Thesis. (3-6).

8811. Advanced Seminar in Mathematics. (1-3). PREREQUISITE: permission of instructor.

†8812. Independent Studies in Mathematics or Statistics. (1-12). Directed independent studies in an area selected by the student and approved by the student's advisory committee. Proposed plan of study must be approved prior to enrollment. Repeatable by permission. A maximum of 12 credit hours will count toward graduation. PREREQUISITE: The student must have passed the qualifying examination.

†8813. Directed Research in Mathematics or Statistics. (1-12). Directed research in an area selected by the student and approved by the student's advisory committee. Proposed plan of study must be approved prior to enrollment. Repeatable by permission. A maximum of 12 credit hours will count toward graduation. PREREQUISITE: The student must have completed at least 6 credit hours in MATH 8812.

†9000. Dissertation. (1-12). Independent research for the PhD degree.

† Grades of S, U, or IP will be given

MATHEMATICS COURSES FOR SECONDARY SCHOOL TEACHERS (MATH)

6151. History of Mathematics. (3). The development of mathematics from the earliest times to the present; problem studies; parallel reading and class reports. PREREQUISITE: 21 hours in MATH courses including MATH 2210 and MATH 2701.

7171. Workshop in Junior High Mathematics. (3). This course is designed to provide in-service training, with emphasis on new course content.

7174. Workshop in Senior High Mathematics. (3). This course is designed to provide in-service training, with emphasis on transformation geometry.

7281. Linear Algebra for Teachers. (3). Euclidean n-space; vector spaces; subspaces; linear independence and bases; linear transformations; matrices; systems of linear conditions; characteristic values and vectors of linear transformations. PREREQUISITE: MATH 7381.

7282. Abstract Algebra for Teachers. (3). A basic abstract algebra course designed especially for teachers. Topics will include: groups, rings, integral domains, fields; an axiomatic approach to the development of algebra; concepts of proof. PREREQUISITE: College Algebra.

7381. Introduction to Analysis I. (3). Properties of real number system; elementary functions; plane analytic geometry; nature of the derivative; techniques of differentiation; periodic functions; differentiation of trigonometric functions; applications of the derivative; concepts of integration. PREREQUISITE: MATH 1710 or MATH 1730.

7382. Introduction to Analysis II. (3). Continuation of MATH 7381; definite integral with applications; integration of elementary transcendental functions; techniques of integration; indeterminate forms and improper integrals; infinite sequences and infinite series with tests for convergence. PREREQUISITE: MATH 7381 or equivalent.

7681. Probability for Secondary Teachers. (3). Probability spaces, theory of statistical inference physical interpretations of probability. PREREQUISITE MATH 1211.

STATISTICS (MATH)

6607. Introduction to SAS Programming. (3). SAS program statement syntax and flow control; selecting and summarizing observations; combining, dividing, and updating SAS dataset; input tailoring and output customization; SAS built-in functions; SAS Macro Language Programming; other SAS packages like SAS/GRAPH and SAS/IML. NOTE: Introductory statistical courses are recommended.

6611. Introduction to Applied Statistics. (3). Binomial, hypergeometric, Poisson, multinomial and normal distributions; test of hypotheses, chi-square test, t-tests, F-test, etc.; nonparametric tests; correlation analysis. PREREQUISITE: 6 hours in Mathematics at level of MATH 1710 or above. NOTE: Students majoring in Mathematical Sciences may not apply credit for this course to their degree requirements. Students majoring in other areas such as Physics or Engineering and who have a calculus background should take MATH 6635.

6614. Applied Probability and Queuing Theory. (3). Probability and random variables, discrete and continuous probability distributions, stochastic processes, queuing theory, applications of probability and queuing theory to computer systems. NOTE: Students may not receive credit for both MATH 6614 and MATH 6635. PREREQUISITES: MATH 1920, MATH 2701, and COMP 1900.

6635. Introduction to Probability Theory. (3). Basic probability theory, random variables, discrete and continuous probability distributions, functions of one or more random variables, multivariate distributions including multinomial and bivariate normal distributions. NOTE: Students may not receive credit for both MATH 6635 and MATH 6614. PREREQUISITE: MATH 2110.

6636. Introduction to Statistical Theory. (3). Functions of two random variables; gamma, beta, multinomial, and bivariate normal distributions; Bayes estimators; maximum likelihood and method of moments estimators; sufficient statistics, unbiasedness, confidence intervals, and hypothesis testing. PREREQUISITE: MATH 6635.

6637. Statistical Methods. (3). Basic concepts of hypothesis testing; comparisons of two population means, proportions, and variances; analysis of variance; completely randomized designs, randomized block designs, Latin square designs; multiple comparisons; simple linear model and multiple regression; analysis of covariance. PREREQUISITE: MATH 6611 or 6635.

6640. Introduction to Probability Models. (3). Basic concepts of discrete Markov chains; branching processes; Poisson processes; applications to modeling of the population growth; application to modeling of the spread of infectious disease. PREREQUISITE: MATH 6635.

7613. Probability Theory. (3). Probability measures; distribution functions; independence; mathematical expectation, modes of convergence; Borel-Cantelli Lemma, weak and strong laws of large numbers; Glivenko-Cantelli lemma; characteristic functions inversion theorems; Slutsky's theorem, central limit theorem, Liapounov and Lindberg-Levy and Lindberg-Feller theorems; multivariate extensions; Berry-Esseen theorem. PREREQUISITES: MATH 6350. Knowledge of MATH 6613 recommended.

7641. Analysis of Variance. (3). Basic concepts of ANOVA, partitioning of the sums of squares, fixed effects models, t- and F-tests, multiple comparison procedures, random effect models, variance component models, analysis of covariance and introduction to MANOVA (SAS or comparable statistical packages used extensively to analyze different types of designs). PREREQUISITE: MATH 7643 or MATH 6636.

7642-8642. Experimental Design. (3). Fundamental concepts in designing experiments, justification of linear models, randomization, principle of blocking, use of concomitant observations, principle of confounding, fractional replication, composite designs, incomplete block designs. PREREQUISITE: MATH 7641 or 7643.

7643. Least Squares and Regression Analysis. (3). Basic concepts of hypothesis testing and confidence intervals; simple and multiple regression analyses, model selection, Mallows' C_p , examination of residuals, Box-Cox transformation, influence diagnostics, multicollinearity, ridge-regression, probit, logit, and log-linear analyses; intensive use of SAS or other statistical packages. PREREQUISITE: MATH 6635.

7645. Sampling Techniques. (3). Planning, execution, and analysis of sampling from finite populations; simple, stratified, multistage cluster and systematic sampling; ratio and regression estimates, estimation of variance. PREREQUISITE: MATH 6635; COREQUISITE: MATH 6636.

7647. Nonparametric Statistical Methods. (3). Use of distribution-free statistics for estimation, hypothesis testing, and correlation measures in designing and analyzing experiments. PREREQUISITE: MATH 6635; COREQUISITE: MATH 6636.

7651. Linear Models. (3). Multivariate normal distributions, distribution of quadratic forms, general linear hypothesis of full rank, optimal point and interval estimations, applications to regression models; elements of generalized linear models, applications to logistic regression and log-linear models; use of SAS procedures. PREREQUISITE: MATH 7643.

7654. Inference Theory. (3). Bayes and maximum likelihood estimators, sufficient statistics; Rao-Blackwell Theorem, sampling distributions; unbiasedness, completeness and UMVU estimators; efficient estimators, Cramer-Rao inequality; simple robust estimators; UMP-tests; likelihood ratio tests, t-tests and F-tests. PREREQUISITE: MATH 6636.

7656-8656. Advanced Techniques in Statistical Inference. (3). Limit theorems; uniformly minimum variance unbiased and maximum likelihood estimators; information inequalities; large sample theory; robust estimators; uniformly most powerful unbiased and invariant tests; sequential and robust tests. PREREQUISITE: MATH 7654.

7657-8657. Multivariate Statistical Methods. (3). Basic contents: multivariate normal distributions; Wishart distribution, Hotelling- T^2 , Matric-t and Beta distributions; generalized regression models and growth curve models; multivariate analysis of variance; principal component analysis; discriminant analysis; factor analysis; curve fitting procedures in multivariate cases. All topics will be illustrated by practical examples. PREREQUISITE: MATH 6636 or permission of the instructor.

7660-8660. Applied Time Series Analysis. (3). Basic concepts and examples of stationary and nonstationary time series; random harmonic analysis; spectral density functions, model building procedures for time series models; model identification; diagnostic checking, smooth, forecasting and control; Box-Jenkin approach of time series analysis; some seasonal models. PREREQUISITE: MATH 6636.

7670-8670. Applied Stochastic Models. (3). Markov chains with discrete time; classification of states, stationary distributions, absorption probabilities and absorption time; Markov chains with continuous time; birth-death processes, waiting time distributions, queuing models, population growth models, Kolmogorov forward and backward equations, diffusion processes, Fokker-Planck equation; applications to genetic problems, etc. PREREQUISITES: MATH 6636 and 6640.

7671-8671. Individual Studies in Statistics. (1-3). Directed individual study of recent developments in statistics. Repeatable by permission. PREREQUISITE: Permission of the instructor.

7672-8672. Special Problems in Statistics. (1-3). (6671). Recent developments in statistical methods and applications. PREREQUISITE: Permission of the instructor.

7680-8680. Bayesian Inference. (3). Nature of Bayesian inference; formulation and choice of prior distributions; advantages and disadvantages of Bayesian approach; applications of Bayesian approach to Behren-Fisher problems, to regression analysis and to the analysis of random effect models; applications of Bayesian approach to the assessment of statistical assumptions; Bayesian prediction procedures. PREREQUISITE: MATH 6636.

7685-8685. Statistical Simulation and Computing. (3). Uniform random number generation and testing, generation of non-uniform random variables, approximating tail probabilities and percentage points in common distributions, computational methods for multiple regression analysis. PREREQUISITE: MATH 6636 and knowledge of FORTRAN.

7691-8691. Seminar in Statistical Research. (1-3). Recent developments in statistical methods and their applications. Basic topics cover "multivariate method," growth curve models, robustness and effects of departure from basic statistical assumptions on common inference procedures, multivariate contingency tables, bioassay, etc. PREREQUISITE: MATH 6636.

7692-8692. Statistical Consulting. (3). Methods and techniques of statistical consulting; students will participate in consulting practice supervised by graduate faculty in statistics. May be repeated for a total of 6 credit hours. PREREQUISITES: MATH 6611 and MATH 6637.

7695-8695. Bootstrap and Other Resampling Methods. (3). Empirical distribution and plug-in principle; bias reduction; bootstrapping regression models; the jackknife; balanced repeated replication; bootstrap confidence intervals; parametric bootstrap; permutation tests. PREREQUISITE: MATH 7645 and MATH 7647.

7759-8759. Categorical Data Analysis. (3). Exponential family of distributions and generalized linear models; binary variables and logistic regression; contingency tables and log-linear models; quasi-likelihood functions; estimating functions. PREREQUISITES: MATH 7643 and MATH 7654.

7761-8761. Theory of Nonparametric Statistics. (3). Order statistics, distribution free statistics, statistics using counting and ranking, one-sample and two-sample U-statistics, asymptotically distribution-free statistics, asymptotic relative efficiency of tests, confidence intervals, linear rank statistics, one-sample location problem, two-sample location and scale problems. PREREQUISITE: MATH 7654.

7762-8762. Survival Analysis. (3). Nonparametric estimation and comparison of survival functions: Kaplan-Meier Estimator and other estimators of hazard functions; parametric survival models; Gehan test, Mantel-Haenszel test and their extensions; Cox proportional hazard model: conditional likelihood, partial likelihood analysis, identification of prognostic and risk factors; applications to life-testing and analysis of survival data using statistical packages such as SAS. PREREQUISITES: MATH 7643 and MATH 7654.

7763-8763. Analysis of Quantal Response Data. (3). Maximum likelihood procedure for fitting simple models: method of scoring,

iterated weighted regression, E-M algorithms, generalized linear models, multivariate bioassays, extended models for quantal assay data; over-dispersed binomial and Poisson models; quasi-likelihood and generalized estimating equations; robust and nonparametric methods; use of statistical packages such as SAS. PREREQUISITES: MATH 7643 and MATH 7654.

7764-8764. Statistical Methods for Biomedical and Environmental Research. (3). Penalized likelihood method, spline and nonparametric regression, use of E-M algorithm, Fourier transform method, error-in-variables, longitudinal models and repeated measures; generalized estimating equations; analysis and modeling of AIDS data; statistical risks assessment. PREREQUISITES: MATH 7643 and MATH 7654.

7765-8765. Advanced Stochastic Models in Biomedical Sciences. (3). Stochastic models of the AIDS epidemic; chain multinomial models, Markov models, Non-Markov marker processes, diffusion processes for AIDS, stochastic models of carcinogenesis; two-stage, multi-event and multiple path models. PREREQUISITES: MATH 7654 and MATH 7-8670.

MICROBIOLOGY AND MOLECULAR CELL SCIENCES

*Room 201 Life Sciences Building
(901) 678-2955*

STEVEN D. SCHWARTZBACH, PhD
Chair

BARBARA J. TALLER, PhD
Coordinator of Graduate Studies

*E-mail: bjtaller@latte.memphis.edu
www.people.memphis.edu/~microcell/mmcs.html*

MEMBERS

- MARY E. ANDERSON, *Assistant Professor*
PhD (1983), Cornell University [2003]
KING-THOM CHUNG, *Professor*
PhD (1972), The University of California-Davis [2001]
LEWIS B. COONS, *Professor*
PhD (1970), North Carolina State University [2006]
T. KENT GARTNER, *Professor*
PhD (1965), The University of California [2006]
CHARLES A. LESSMAN, *Professor*
PhD (1980), The University of Minnesota [2001]
DONALD D. OURTH, *Professor*
PhD (1969), The University of Iowa [2006]
S. EDWARD STEVENS, JR., *Professor*
PhD (1971), The University of Texas-Austin [2001]
THOMAS R. SUTTER, *Professor*
PhD (1988), University of Cincinnati [2007]
TIT-YEE WONG, *Professor*
PhD (1981), The University of Houston [2005]

ASSOCIATE MEMBERS

- BARBARA J. TALLER, *Associate Professor*
PhD (1978), The University of Wisconsin-Madison [2002]

ADJUNCT MEMBERS

- FRANK ANTHONY,
PhD (1984), Texas Christian University [2002].
DENNIS CROUSE,
MD (1982) The University of Texas-Galveston;
PhD (1993), The University of Alabama-Birmingham [2002]
JAMES W. DAVENPORT,
PhD (1983), Cornell University [2002]
MALINDA FITZGERALD,
PhD (1986), The University of Tennessee [2004]
LILLIAN M. GABER,
PhD (1976), Ain Shams University, Egypt [2004]
SUZANNE JACKOWSKI,
PhD (1977), University of Tennessee-ORNL [2003]

- CARL W. JACKSON,
PhD (1971), The University of Tennessee-Knoxville [2002]
D. BETTY LEW,
MD (1980), Temple University [2002]
THOMAS E. MERCHANT,
PhD (1991), University of Utrecht, The Netherlands [2003]
KEITH E. MURPHY,
PhD (1989), Louisiana State University [2001]
THOMAS F. O'BRIEN, JR.
MD (1986), The University of Tennessee-Knoxville [2001]
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PhD (1984), Medical College of Virginia [2002]
RICHARD A. SMITH,
PhD (1997), The University of Memphis [2001]
CARRIE HAYES SUTTER,
PhD (1996), Johns Hopkins University [2003]
WILLIAM S. WALKER,
PhD (1968), University of Southern California [2003]

AFFILIATE MEMBERS

- JOSEPH J. BARRETT,
DVM (1983), The University of Tennessee-Knoxville [2003]
ANDREW C. FRY,
PhD (1993), Pennsylvania State University [2002]

I. The Department of Microbiology and Molecular Cell Sciences offers graduate programs leading to the Master of Science or Doctor of Philosophy degree with a major in Biology. Concentrations are offered in Microbiology and in Molecular Cell Sciences.

II. MS Degree Program

A. Program Admission

1. Scores for both the GRE General Test and the Subject Test in biochemistry, cell, and molecular biology are required. Minimum GRE scores required for admission are 400 verbal and 450 quantitative. Subject test subscores will be used to help plan the student's academic program by identifying areas that need strengthening.
2. Two letters of recommendation.
3. A minimum score of 550, or 210 on the computer-based, TOEFL (for students whose native language is not English).
4. An undergraduate degree with a minimum GPA of 2.5 on a 4.0 scale. Undergraduate coursework in organic chemistry, physics, and calculus is strongly recommended.

B. Program Requirements (Thesis)

1. A minimum of 30 semester hours beyond the baccalaureate degree.
2. MMCS 7004, 7200, and 7996. Seminar attendance is mandatory.
3. Maintenance of a GPA of 3.0. Continuation of a student who earns a grade of "2.0" or below in a course is at the discretion of the student's Advisory Committee.
4. Passing grade on a written examination covering subject matter designated by the student's Advisory Committee.
5. Public presentation and defense of the student's thesis as approved by the student's Advisory Committee. The student must register for a minimum of 6 thesis hours; no more than this minimum will count toward the degree even though the student may have had to register for more hours to remain in continuous enrollment.

C. Program Requirements (Non-thesis)

1. A minimum of 36 semester hours of graduate courses. The total number of semester hours required for graduation is determined by the student's Advisory Committee. No more than 3 semester hours can be satisfied by BIOL or MMCS 7092.
2. MMCS 7004 and 7200. Seminar attendance is mandatory.
3. Maintenance of a GPA of 3.0. Continuation of a student who earns a grade of "2.0" or below in a course is at the discretion of the student's Advisory Committee.
4. Passing grade on a written and/or oral final examination administered by the student's Advisory Committee during the final semester of residence.

III. PhD Degree Program

A. Program Admission

1. The prospective doctoral student must have an undergraduate degree, preferably in the life or physical sciences, from a recognized institution. Undergraduate coursework in organic chemistry, physics, and calculus is strongly recommended.
2. Scores for both the GRE General Test and the Subject Test in biochemistry, cell, and molecular biology are required with the application to enter the Graduate School. Minimum GRE scores required for admission are 450 verbal and 550 quantitative. Subject test subscores will be used to help plan the student's academic program by identifying areas that need strengthening.
3. A minimum score of 550 on the TOEFL, or 210 on the computer-based TOEFL, (for students whose native language is not English).
4. Two letters of recommendation.

B. Program Requirements

1. Course Requirements—MMCS 8004, 8200, and 9000. Attendance at seminar is mandatory. A minimum of 3 academic years (72 semester hours) beyond the baccalaureate degree is required. A minimum of 30 semester hours (including 18 semester hours of MMCS 9000 Research and Dissertation) must be taken in residence.
2. Qualifying Examination—Results of the GRE Subject Test in biochemistry, cell, and molecular biology will serve as the qualifying exam and will be used to help plan the student's academic program.
3. Grade Point Average—Maintenance of a GPA of 3.0 is required. Continuation of a student who earns a grade of "2.0" or below in a course is at the discretion of the student's Advisory Committee.
4. Foreign Language and Research—Students are required to demonstrate competence in foreign language or research tool areas, or both. This requirement will be determined by each student's Advisory Committee.
5. Comprehensive Examination and Candidacy—After two years of coursework, the graduate student may take the written and oral comprehensive examination in his or her major area. Admission to candidacy will be recommended to the Graduate School by the student's committee upon satisfactory completion of any language requirement, course work, comprehensive examination, and acceptance of the dissertation project.
6. Dissertation and Research—A dissertation will be required of candidates for the doctoral degree. A minimum of eighteen (18) hours of research and dissertation credit must be completed during the graduate program. No more than this minimum will count toward the degree even though the student may have had to register for more hours to remain in continuous enrollment. The dissertation must show a mastery of the techniques of scientific research, and it must be a distinct and new contribution to the body of scientific knowledge. The student's committee must approve the topic and the final dissertation.
7. Final Examination—The final examination will be conducted by the chair of the student's committee. The committee will consist, insofar as possible, of the same persons involved in the comprehensive examination. The final examination will be an oral defense of the dissertation and will be announced and open to the public. Upon successful completion of the examination and all degree requirements, the committee will recommend awarding the PhD

MICROBIOLOGY AND MOLECULAR CELL SCIENCES (MMCS)

6090-99. Special Topics in Microbiology and Molecular Cell Sciences. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated with different topics for a maximum of 4 hours. PREREQUISITE: Consent of instructor.

6150. Developmental Biology. (3). (BIOL 6150, 6151). Introduction to study of developing biological systems at cellular and molecular level. *Three lecture hours per week*. PREREQUISITES: BIOL 3072 and CHEM 3312.

6350. Microbial Biotechnology. (3). Principles underlying practical applications of microorganisms, including synthesis of commercial products, vaccines and antibodies, bioremediation and biomass utilization, plant biotechnology, and food production. *Three lecture hours per week*. PREREQUISITES: MMCS 3550 and CHEM 3312.

6375. Molecular Biology of Parasites and Their Vectors. (3). Emphasis on molecular and immunological aspects of parasites of humans, companion animals, and livestock; biology, treatment, and prevention of parasitic diseases. *Three lecture hours per week*. PREREQUISITE: MMCS 3130 or 3550.

6380. Histology: Tissue and Organ Biology (4). Histology, with emphasis on the relationship between structure and function in mammalian tissues and organs; human histology emphasized. *Three lecture, three laboratory hours per week*. PREREQUISITE: A course in vertebrate physiology is recommended.

6400. Plant Cell and Molecular Biology. (3). The cellular and molecular basis of plant development, including plant hormones, signal transduction, regulation by light, plant-microbe interactions, and plant transformation. *Three lecture hours per week*. PREREQUISITES: MMCS 3130 and BIOL 3072.

6440. Pathogenic Bacteriology. (3). (BIOL 6440). Survey of pathogenic bacteria, human and veterinary diseases they cause, and methods of diagnosis; molecular basis of pathogenesis. Introduction to immunological principles and immunity. *Three lecture hours per week*. PREREQUISITES: MMCS 3550 and CHEM 3312.

6445. Immunology. (3). (BIOL 6445, 6444). Antigens, immunoglobulin classes, cells and cytokines of immune response, complement system, hypersensitivities, blood groups, vaccines, and immunity. *Three lecture hours per week*. PREREQUISITES: MMCS 3550 and CHEM 3311.

6450. Microbial Ecology. (3). (BIOL 6450). Roles of microorganisms in the environment; microbial processes, interactions with the environment and biota, population ecology, community ecology, and biodegradation. *Three lecture hours per week*. PREREQUISITES: MMCS 3550, 4511 and 4512, or consent of instructor.

6460. Advanced General Microbiology Laboratory. (2). Application of modern laboratory techniques and instrumentation to experiments in microbial physiology, genetics, ecology, and biotechnology. *Four laboratory hours per week*. PREREQUISITES: MMCS 3550 and 3600.

6465. Advanced Medical Microbiology Laboratory. (2). Application of modern laboratory techniques and instrumentation to experiments in pathogenic bacteriology, immunology, virology, and parasitology. *Four laboratory hours per week*. PREREQUISITES: MMCS 3550 and 3600.

6470. Molecular Genetics. (4). (BIOL 6470). Structure, function, and replication of DNA, recombination, colinearity of DNA with genetic map, mutagenesis, plasmids, genetic code, protein synthesis, suppression, regulation of gene expression, genetic engineering, and immunogenetics. For students without formal training in molecular genetics. *Four lecture hours per week*. PREREQUISITES: BIOL 3072 and MMCS 3130 or 3500.

6501. Virology. (3). Introductory study of viruses of human and veterinary significance, and methods of cultivation, isolation, and characterization; study of pathogenic mechanisms. *Three lecture hours per week*. PREREQUISITE: MMCS 3550.

6503. Biochemistry Laboratory I. (2). (BIOL 6503). (Same as CHEM 6501). Survey of common biochemical techniques and the properties of biological molecules; emphasis on purification and assay of enzymes and on enzyme kinetics. *Six laboratory hours per week*. PREREQUISITES: CHEM 3301, and CHEM 3302 or 3201. PREREQUISITE OR COREQUISITE: MMCS 6511 or CHEM 6511.

6504. Biochemistry Laboratory II. (2). (BIOL 6504). (Same as CHEM 6502). Biochemical laboratory techniques; emphasis on nucleic acids and recombinant DNA techniques. *Six laboratory hours per week*. PREREQUISITES: MMCS 6511 or CHEM 6511 and MMCS 4325 or MMCS 4470 or consent of instructor.

6511. Biochemistry I. (3). (BIOL 6511). (Same as CHEM 6511). Chemistry of amino acids and proteins related to their properties in biochemical systems; enzymology, including kinetics and conformation studies; coenzymes and their functions; importance of pH; bioenergetics; chemistry of carbohydrates, lipids, and nucleotides. *Three lecture hours per week*. PREREQUISITE: CHEM 3312.

6512. Biochemistry II. (3). (BIOL 6512). (Same as CHEM 6512). Metabolism of carbohydrates, amino acids, and nucleotides, with emphasis on mammalian systems; biochemistry of RNA and DNA, including their relationship to biosynthesis of proteins, DNA, and RNA. *Three lecture hours per week*. PREREQUISITE: MMCS 6511 or CHEM 6511.

6580-99. Special Topics in Biochemistry. (1-3). (Same as CHEM 6580-99).

†7003-8003. Teaching Skills for Graduate Assistants. (3). Strategies and skills for effective college teaching; includes use of innovative approaches and computer-based instructional technology. May be repeated up to 12 credit hours. May not be applied to degree requirements.

†7006-8004. College Biology Teaching. (1). Under faculty supervision, graduate students participate in teaching laboratory sections of existing undergraduate courses in the biological sciences (MMCS or BIOL). Student's performance evaluated by faculty member in charge and appropriate grade assigned. *Two-four laboratory hours per week*.

†7006-8006. Care and Humane Use of Laboratory Animals. (2). (Same as BIOL 7006-8006). Care and use of live vertebrate animals in research and teaching. Students must enroll in this course before working with live vertebrate animals; fulfills requirements of Federal Animal Welfare Act and NIH Guide. *One lecture and two laboratory hours per week*.

7031-8031. Cellular Physiology. (4). (BIOL 7031-8031). Cell function, cellular thermodynamics, exchange of materials across cell membranes, physiological buffering systems, enzyme kinetics, cellular respiration, and cellular response to extracellular perturbation. *Two lecture, four laboratory hours per week*. PREREQUISITE: Permission of instructor.

7040-8040. Light Microscopy and Image Processing. (3). Light microscope optics, theory and practice of confocal microscopy, current techniques in fluorescence microscopy, digital image acquisition and

processing. Lectures occasionally supplemented with demonstrations. *Three lecture hours per week.*

7051-8051. Vertebrate Cell Culture Techniques. (4). (BIOL 7051-8051). Theory, principles, and practical preparation in the use of vertebrate cell cultures and cell lines in biomedical research. *Two lecture, four laboratory hours per week.* PREREQUISITE: Permission of instructor.

†7092-8092. Research. (1-6). Consultation, reading, and laboratory work investigating selected topics in microbiology and molecular cell sciences. Formal paper with review of literature and results of investigation required. May be repeated for maximum of 6 semester hours credit.

7131-8131. Cell and Molecular Biology. (4). Introduction to principles of molecular biology as they apply to eukaryotic cells including transcription, translation, regulation of protein function, DNA replication, membrane biogenesis, secretion, hormone action, signal transduction, and ligand receptor interaction. *Four lecture hours per week.*

†7200-8200. Seminar. (1). (Open to BIOL and MMCS students only.) Student presentations of topics in microbiology, biochemistry or cell and molecular biology.

7290-8290. Molecular Computing. (3). (Same as COMP 7290-8290). Basics of cell biology and genetics (DNA structure and enzymes, replication, and translation); feasible DNA-based solution of hard computational problems; issues in the design of molecular computers; foundations of nanotechnology. PREREQUISITE: COMP 6030 or permission of instructor.

7331-8331. Photosynthesis. (2). (BIOL 7331-8331). Lectures and readings on modern theory of photosynthesis. Includes such topics as chloroplast structure and function; chemistry and photo-chemistry of chlorophyll; influence of external factors on rate of photosynthesis, absorption, fluorescence, and luminescence; energy storage; efficiency; carbon fixation; photosynthesis in cell extracts; phosphorylation. *Two lecture hours per week.*

7400-8400. Comparative Immunology. (3). Phylogenesis and development of the defensive immune systems of invertebrates and the vertebrate classes. *Three lecture hours per week.* PREREQUISITE: MMCS 6445.

7464-8464. Advanced Immunology. (4). Selected topics and laboratories in molecular and cellular immunology, immunobiology, tumor immunology, and medical aspects of immunology. *Three lecture, two laboratory hours per week.* PREREQUISITES: MMCS 6445 and 6511 or their equivalent.

7470-8470. Advanced Bacterial Genetics. (3). Advanced studies in the molecular basis of bacterial genetics. Topics include mutation and bacterial repair systems, complementation analysis, recombination, gene transfer mechanisms, gene conversion and marker effects, insertional elements, phase variation, and bacteriophage genetics. *Three lecture hours per week.* PREREQUISITE: MMCS 6470 or equivalent.

7500-09-8500-09. Special Topics in Biochemistry. (1-3). (Same as CHEM 7500-09-8500-09). Lectures and conferences covering selected areas of current interest (including enzymology, protein and nucleic acid chemistry, physical chemistry of biochemical macromolecules, lipid, carbohydrate and amino acid metabolism, biochemical energetics, and metabolic regulation. May be repeated for a maximum of 12 hours. PREREQUISITE: Permission of instructor.

7530-8530. Bacterial Physiology. (3). (BIOL 7530-8530). Bacterial physiology including growth, nutrition, biosynthesis, biodegradation, and adaptation. *Three lecture hours per week.*

7550-8550. Food and Industrial Toxicology. (3). Principles and methodology of genotoxicity; assessment of toxic substances in animal and plant foodstuffs, and in industrial wastes; fungal and bacterial contaminants, food additives, and food processing; biotransformation and health impacts are emphasized. *Three lecture hours per week.*

7700-20-8700-20. Special Topics in Microbiology and Molecular Cell Sciences. (1-4). Current topics of special interest. Topics are announced in the *Schedule of Classes*. PREREQUISITE: Permission of instructor.

†7996. Thesis. (1-6).

†9000. Doctoral Research and Dissertation. (1-10). The dissertation must be an independent research project applying a mastery of the

techniques of scientific research. It must be a distinct and new contribution to the body of scientific knowledge. Minimum total of 18 hours is required.

† Grades of S, U, or IP will be given.

PHILOSOPHY

Room 327, Clement Hall
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NANCY SIMCO, PhD
Chair

MARK TIMMONS, PhD
Coordinator of Graduate Admissions

DAVID HENDERSON, PhD
Coordinator of Graduate Studies

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www.people.memphis.edu/~philos/phil.html

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PhD (1985), Washington University [2004]
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PhD (1974), The University of Michigan, Ann Arbor [2006]
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PhD (1991), King's College [2004]
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PhD (1969), The University of North Carolina at Chapel Hill [2006]
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PhD (2000), McGill University [2006]
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ADJUNCT MEMBERS

- RODOLPHE GASCHÉ
PhD (1976), Freie Universität Berlin [2001]
MICHAEL P. LYNCH,
PhD (1995), Syracuse University [2003]
JILL ROBINS, *Associate Professor*
PhD (1995), State University of New York at Buffalo [2002]

- I. The Department of Philosophy offers graduate programs leading to the Master of Arts and Doctor of Philosophy degrees with a major in Philosophy. The master's program is designed to provide comprehensive training in philosophy for students seeking work beyond the bachelor's level, whether for self-enrichment, background for other areas, or in preparation for doctoral work. The doctoral program provides students with the broad background necessary for effective teaching as well as the specialized research skills required for a career in philosophy at the college or university level.

II. MA Degree Program**A. Program Admission**

Students desiring admission to the graduate program in philosophy should correspond with the coordinator of graduate admissions in Philosophy as early as possible in the admission procedure, and as far in advance as they can before the semester in which they plan to enter. The Philosophy Department admits students for the fall semester of each academic year. Prospective applicants should write directly to the Department of Philosophy to request information and application forms. Application deadline (for all materials to be received) is February 1 for the MA program.

B. Program Prerequisites

1. A bachelor's degree from a recognized college or university. Official transcripts should be sent to the Office of Graduate Admissions.
2. A minimum of a 2.5 quality point average on a scale of 4.0. Students with less than a 2.5 quality point average may, on occasion, be admitted.
3. An acceptable score on the general test of the Graduate Record Examination.
4. At least 18 semester hours in undergraduate philosophy courses including the following courses or their equivalent: introduction to philosophy, ethics, elementary logic, intermediate logic, history of ancient philosophy, and history of modern philosophy. Students who lack one or more of these courses may be admitted to the program only on the condition that they take the appropriate course as soon as possible.
5. Three letters of recommendation from people qualified to judge the student's ability to undertake graduate work. Form letters for this purpose should be obtained from and returned to the Coordinator of Graduate Admissions in Philosophy.
6. A 10-20 page writing sample and a 1-page statement of purpose should be submitted to the Coordinator of Graduate Admissions in Philosophy.

C. Program Requirements

1. Thirty to thirty-three hours of class work, 23 of which must be at the 7000 level or above. Students who write a thesis are required to take 30 hours, 3 of which are credit for the thesis. Students who do not write a thesis are required to take 33 hours. Students with approved collateral areas may take up to six hours outside the department if they are writing a thesis or nine hours if they are not.
2. A written comprehensive examination covering the major areas and history of philosophy.

III. PhD Degree Program**A. Program Admission**

The Philosophy Department admits students for the fall semester of each academic year.

Prospective applicants should write the Department of Philosophy to request information and application forms. Application deadline (for all materials to be received) is February 1 for the PhD program.

1. Fulfillment of university requirements for admission to the Graduate School, including a score on the GRE acceptable to the department.
2. The equivalent of the BA degree, usually with a major in philosophy. This must include at least the following courses or their equivalents: Intermediate Logic, Survey of Ancient Philosophy, Survey of Modern Philosophy, and Ethics. Students lacking one or more of these courses may be admitted to the program provisionally, on the condition that they make up the missing course work as soon as possible (graduate credit will not be granted for make-up work).
3. Three letters of recommendation, to be submitted by persons competent to judge the prospective student's ability to undertake graduate work. (These letters are to be sent directly from the referee to the department's director of graduate admissions).
4. Transcripts of prior academic work. Official copies should be sent to the Office of Graduate Admissions. A minimum GPA of 3.00 (on a scale of 4.00) will be expected.
5. A 10-20 page writing sample and a 1-page statement of purpose should be submitted to the Coordinator of Graduate Admissions in Philosophy.

B. Retention Requirements

A student will be retained continuously in the program until completion of the degree providing the following conditions are met:

1. All students will be required to maintain a GPA of at least 3.5. Should the student's GPA fall below that mark, a period of one semester will be allowed to correct the deficiency. At the discretion of the chair and the coordinator of graduate studies, this period may be extended one additional semester.
2. Students will be expected to demonstrate satisfactory progress in fulfilling the graduation requirements outlined below.

C. Graduation Requirements

1. General Requirements
 - a. A minimum of 72 hours of graduate credit beyond the bachelor's degree is required. At least 60 hours credit must be at the 7000 level or higher.
 - b. At most 18 hours of graduate work may be transferred from graduate work elsewhere and applied towards the 72 hours needed for the PhD (Only graduate hours that were not used for a previous graduate degree, that relate in content to the graduate program, and that do not exceed university time restrictions can be transferred.)

- c. For students who have attained a master's degree, a minimum of 42 hours of graduate credit is required beyond that master's degree. At least 36 hours of graduate credit must be at the 7000 level or higher. More hours may be required at the discretion of the department's advisory committee.
- d. No more than 18 credit hours of dissertation (PHIL9000) will count towards satisfying the total number of graduate hours required for the PhD. A minimum of 6 hours of dissertation is required for the PhD.

2. Residency Requirements

At least 24 credit hours must be earned while the student is in continuous residence in the program.

3. Distribution Requirements

- a. Core Requirements—Students must take a core of twelve hours in major figures in the history of philosophy (at least three in ancient and three in modern); six hours in theoretical philosophy; and six hours in practical philosophy, three of which must be in ethics.
- b. Additional Requirements—Students must take the proseminar, normally during the first semester of graduate work (those who have not had an advanced logic course will be expected to take one); at least one course must be a systematic study of a major figure. At least two courses must be in the analytic tradition, and two in the continental tradition; these will normally be courses in the twenty-four hour core.

4. Examination Requirements

- a. Qualifying Examinations—Qualifying examinations are taken in August of the student's second year. They consist of two four-hour written examinations, one in the history of ancient philosophy and one in the history of modern philosophy. A general reading list is provided for each area. Only students who pass the qualifying examination may continue work for the PhD.

NOTE: It is expected that the doctoral qualifying examination will be coordinated with the master's comprehensive examination, so that those whose scores fail to qualify them for advanced doctoral study but are sufficient for the master's degree may then complete the requirements for a terminal master's degree.

- b. Area Examinations—Area examinations are taken in August of the student's third year. They consist of two four-hour written examinations, one in metaphysics/epistemology and one in ethics/social-political philosophy. A general reading list is provided for each area. Only students who pass the area examinations may continue work for the PhD.

5. Language Requirements

Students must demonstrate sufficient ability to translate philosophical texts by sitting for a two-hour translation examination in two of the following languages: French, German, Classical Greek, Latin. Other languages may be substituted if they are shown to be relevant to the student's course of study.

6. Dissertation Requirements

- a. Dissertation Committee—The student must select a dissertation director. The coordinator of graduate studies in consultation with the graduate faculty will select three additional readers.
- b. Dissertation Proposal Defense—The student will submit a proposal for the dissertation to the committee and defend the proposal before the graduate faculty. This defense will normally occur before the end of the sixth semester.
- c. Dissertation Defense—The dissertation committee will schedule a defense of the completed dissertation in coordination with the chair and the coordinator of graduate studies. Notice will be given, copies of the dissertation made available, and a public oral defense of the dissertation will be held. Upon approval of the dissertation committee and faculty, the dissertation will be submitted to the Graduate School and the degree awarded.

PHILOSOPHY (PHIL)

6211. Studies in Ancient Philosophy. (3). Readings from primary sources, supplemented by commentary from antiquity and modern scholarship, including Pre-Socratics, Plato, Aristotle, and the Hellenistic period. May be repeated for maximum of 9 hours credit with permission of graduate coordinator.

6311. Studies in Modern Philosophy. (3). Readings from major philosophers of 17th to early 19th centuries, supplemented by commentaries from modern and contemporary sources. May be repeated for a maximum of 9 hours credit with permission of graduate coordinator.

6421. Philosophy of Mind. (3). Survey of major issues and positions in recent philosophy of mind; behaviorism; reductive, non-reductive, and eliminative versions of materialism; functionalism; mental causation; phenomenal consciousness; psychoanalysis and the unconscious; computational and connectionist models of mind.

6422. Recent Anglo-American Philosophy. (3). An examination of major developments in philosophy in England and the United States from 1900 to present with reading from such philosophers as Russell, Moore, Ayer, Wittgenstein, James, Dewey, Lewis, Quine, and other contemporary authors.

6441. Recent Continental Philosophy. (3). Major figures in 20th century European thought; movements such as phenomenology, existentialism, structuralism, critical theory, and hermeneutics. May be repeated for maximum of 9 hours credit with permission of graduate coordinator.

6551. Social and Political Philosophy. (3). Theories of society, culture, institutions, government, law, power, authority, rights, and obligation.

6632. Advanced Logic. (3). The nature of axiomatic systems and foundations of mathematics.

6661. Philosophy of Science. (3). Survey of several central issues in the philosophy of science. Topics may include issues such as competing understandings of scientific practice, scientific explanation, the continuity and discontinuity of scientific theories, and the relations between the various sciences.

6662. Philosophy of the Social Sciences (3). Scientific character peculiar to social (rather than natural) sciences by virtue of their special subject-matter: humans and society; meaning, understanding vs. explanation, rationality, and the nature of social institutions.

6671. Aesthetics. (3). Treatment of philosophical theories concerning the nature and role of art and the possibility of aesthetic evaluation.

6711. Philosophy of Religion. (3). Philosophical issues raised by religious experience including classical and contemporary arguments for and against existence of God, meaningfulness of religious language, and concepts of faith, evil, and immortality.

6801-20. Special Topics in Philosophy. (3). Topics in areas of epistemology, metaphysics, philosophy of language, philosophy of mind, logical theory, axiology. Area to be covered will be in the *Schedule of Classes*. May be repeated for a maximum of 15 hours credit.

†7001-8001. Proseminar. (3).

†7002-8002. Teaching Skills for Graduate Assistants. (3). This course is designed to impart the skills necessary for both serving as a teaching assistant as well as for designing and teaching one's own philosophy course. May be repeated for up to 12 hours.

Topics vary in all of the following courses. They are announced in the Schedule of Classes and described in the departmental course outline booklet. Some of these courses may be repeated for credit if not to improve a previous grade.

7020-8020. Seminar in Major Figures. (3).

7030-8030. Seminar in Continental Philosophy. (3). May be repeated for a maximum of 9 credit hours.

7040-8040. Seminar in Normative Philosophy. (3). May be repeated for a maximum of 9 credit hours.

7201-8201. Seminar in Classical Philosophy. (3). May be repeated.

7203-8203. Seminar in Contemporary Philosophy. (3). May be repeated.

7241-8241. Seminar on Plato. (3).

7301-8301. Seminar in Modern Philosophy. (3-6). May be repeated.

7372-8372. Seminar on Kant. (3).

7414-8414. Seminar in Metaphysics. (3).

7421-8421. Seminar in Epistemology. (3).

7442-8442. Seminar on Heidegger. (3).

7451-8451. Seminar on Wittgenstein. (3).

7541-8541. Seminar in Social and Political Philosophy. (3).

7551-8551. Seminar in Ethical Theory. (3).

7800-7810-8800-8810. Special Topics in Philosophy. (3).

†7994. Reading and Research. (1-9). May be repeated for a maximum of 9 credit hours.

†7996. Thesis. (1-9). May be repeated for a maximum of 9 credit hours.

8051. Colloquium on Philosophical Problems. (3).

†8071. Research in Progress Seminar. (1-12). May be repeated for a maximum of 12 credit hours.

8252. Seminar on Aristotle. (3).

†8994. Advanced Reading and Research. (1-12). May be repeated for a maximum of 12 credit hours.

†9000. Dissertation. (1-12). May be repeated for a maximum of 12 credit hours.

†Grades of S, U, or IP will be given

PHYSICS

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PhD (1965), University of Manchester, England [2004]

AFFILIATE MEMBER

SILESH JANI,

M. S. (1987), Georgia Institute of Technology [2003]

I. The Department of Physics offers a major in Physics for the Master of Science degree.

II. MS Degree Program

A. Program Admission Requirements

1. For admission to the graduate program, a Bachelor's degree in Physics or a closely related area is required; no minimum undergraduate GPA is specified. Students are also required to present, as a prerequisite, 20 semester hours of undergraduate physics courses including upper division Mechanics, Electricity and Magnetism, and approved Mathematics courses in Calculus and Differential Equations.
2. The GRE is recommended. The minimum acceptable score for admission is a total of 1000 (verbal 400 plus quantitative 600). The GRE Advanced is not required.
3. Students from non-English speaking countries are required to demonstrate proficiency in English via the TOEFL examination. The minimum acceptable score is 550 (or 210 on the computer-based TOEFL).
4. The Miller Analogies Test may be substituted for the GRE. A minimum score of 36 is desirable.

B. Program Requirements

1. After meeting the general degree requirements for admission to The Graduate School, students selecting Physics as a major will be assigned to the Graduate Committee, which must approve and direct their course of study.

2. Students may elect either a thesis or non-thesis program.
3. If a thesis program is selected the following minimum requirements must be satisfied.
 - a. 18 semester hours of physics courses numbered 7000 or above, including PHYS 7100, 7200, 7300, 7375, 7376, and 7520.
 - b. Sufficient additional courses including 3-6 semester hours in PHYS 7996, Thesis, to satisfy a minimum of 30 semester hours (9 semester hours may be in a collateral field of study).
 - c. Satisfactory completion of a comprehensive written examination.
 - d. Complete a research project, submit a written thesis describing the research, orally present and defend the thesis before a faculty committee.
4. If a non-thesis program is selected the following minimum requirements must be satisfied.
 - a. 21 semester hours of physics courses numbered 7000 or above, including PHYS 7100, 7200, 7300, 7375, 7376, and 7520.
 - b. Sufficient additional courses to satisfy a minimum of 33 semester hours in which 9 may be in a collateral field of study.
 - c. Complete a survey of an area of current research in fundamental or applied physics and make an oral and written presentation based on this survey before a faculty committee. The subject of this survey must be approved by the departmental graduate committee at least one semester prior to graduation.
 - d. Satisfactory completion of a written comprehensive examination.

PHYSICS (PHYS)

6000-09. Special Topics in Physics. (3). Selected topics of current interest in physics. Topics are varied and announced in *Schedule of Classes*.

6051. Astrophysics II. (3). Application of radiation laws to the interpretation of stellar structure; introduction to radiative transfer in atmospheres; spectral and luminosity classification of stars, stellar populations, and evolution. *Three lecture hours and occasional observation periods per week.* PREREQUISITE: PHYS 3051.

6110. Nuclear Physics. (3). Properties of atomic nuclei; radioactive transitions; alpha, beta, and gamma decay; binding energy, nuclear forces, and nuclear models. PREREQUISITE: PHYS 3010.

6211. Optics. (3). Geometrical and physical optics including such topics as thin lenses, spherical mirrors, lens aberrations, optical instruments, waves interference, diffraction, absorption, transmission, and scatterings. *Three lecture hours per week.* PREREQUISITE: PHYS 3011, 3211.

6410. Introduction to Quantum Theory. (3). Experimental basis of quantum theory; development of the Schrodinger equation and its solution for simple systems; selected applications in atomic and molecular structure. *Three lecture hours per week.* PREREQUISITE: PHYS 3010, 3011, 3211.

6510. Thermodynamics. (3). A mathematical treatment of thermodynamics, including such topics as work, energy, enthalpy, entropy, reversible and irreversible processes, equilibria, specific heats, and phase transitions. PREREQUISITE: PHYS 2120, 3011.

6610. Solid State Physics. (3). Consideration of such topics as lattice vibrations, specific heats, electrical and thermal conduction in solids, magnetism. *Three lecture hours per week.* PREREQUISITE: PHYS 4410 or 6610.

7010. Fundamental Concepts of Classical Physics for Teachers. (3). Basic concepts of Newtonian mechanics, heat, and sound; emphasis on increasing understanding in classical physics, providing demonstrations of physical principles suitable for classroom use, and designing and performing laboratory experiments. Credit does not apply toward a major or minor in chemistry or physics.

7011. Physics Practicum I. (1). Practicum or laboratory experiments, laboratory techniques, laboratory management, and supervised experience in presenting demonstrations with emphasis on concepts covered in Physics 7010. *Two laboratory hours per week.* COREQUISITE: PHYS 7010.

7020. Fundamental Concepts of Contemporary Physics for Teachers. (3). Basic concepts of electricity and magnetism, optics, atomic and nuclear physics; laboratory experience. Credit does not apply toward a major or minor in chemistry or physics.

7021. Physics Practicum II. (1). Continuation of Physics 7011 with emphasis on concepts covered in Physics 7020. *Two laboratory hours per week.* COREQUISITE: PHYS 7020.

7030. Fundamental Concepts of Modern Physics for Teachers. (3). Basic concepts of modern physics, special relativity, solid state physics, particle physics, and space technology. Background in physics recommended. Credit does not apply toward a major or minor in chemistry or physics.

7031. Physics Practicum III. (1). Continuation of Physics 7021 with emphasis on concepts covered in Physics 7030. *Two laboratory hours per week.* COREQUISITE: PHYS 7030.

7050-59. Special Topics in Advanced Physics. (3-6). Selected topics in advanced physics. Topics are varied and announced in *Schedule of Classes*.

7060. Individual Study in Advanced Physics. (1-3). Independent investigation of an area of advanced physics under supervision of a Physics faculty member. Written report required. May be repeated for a maximum of 6 hours credit. PREREQUISITE: permission of chair.

7070. Fundamental Concepts in Astronomy for Teachers. (3). Observational astronomy, the solar system, stars and stellar evolution, galaxies and cosmology. Occasional night observations may be held. Credit does not apply toward a major or minor in physics or chemistry.

†7080. Teaching Skills for Graduate Assistants. (3). Overview of teaching techniques and classroom management for physics laboratory instructors; includes practical demonstrations in laboratory physics. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Limited to physics majors and permission of graduate coordinator.

†7090. Workshop in Professional Development for Graduate Students. (3). Presentations by Physics faculty and students on current research topic; oral presentation required based on research performed under the supervision of a faculty member. PREREQUISITE: Limited to physics majors and permission of graduate coordinator.

7100. Classical Mechanics. (3). An analytical study of mechanics of particles and rigid bodies by Lagrange's, Hamilton's and Hamilton-Jacobi methods. The special theory of relativity, canonical transformation, and Poisson brackets are among the concepts emphasized.

7200. Quantum Mechanics I. (3). Physical principles and mathematical formalism of quantum theory, with emphasis on applications in atomic, molecular, and solid state physics; scattering theory; and absorption and emission of electromagnetic radiation. PREREQUISITE: PHYS 6410 or equivalent.

7201. Quantum Mechanics II. (3). Continuation of PHYS 7200; scattering theory, quantum dynamics, spin, perturbation methods, and Hartree-Fock. PREREQUISITE: PHYS 7200.

7210. Relativistic Quantum Mechanics. (3). Quantum mechanics of relativistic particles including the Dirac equation, relativistic covariance, solutions for free particles, particles in electromagnetic fields, particles in central fields, methods of approximation and massless particles. *Three lecture hours per week.* PREREQUISITE: PHYS 7200 or permission of instructor.

7220. Relativistic Quantum Fields. (3). General formalism of fields, the Klein-Gordon field, second quantization of the Dirac field, quantization of electromagnetic fields, interacting fields, scattering matrix perturbation theory, dispersion relations, and renormalization. PREREQUISITE: PHYS 7210 or permission of instructor.

7230. Elementary Particles. (3). Introduction to elementary particles, elementary particle dynamics, relativistic kinematics, symmetries, bound states, Feynman calculus, quantum electrodynamics, electrodynamics of quarks and hadrons, quantum chromodynamics, weak interactions, and gauge theories. PREREQUISITE: PHYS 7200 or permission of instructor.

7300. Electrodynamics. (3). An advanced course in electricity and magnetism; topics include fields and potentials, energy methods, steady currents and magnetic materials, Maxwell's equations, and electromagnetic waves.

7375. Methods of Mathematical Physics I. (3). (Same as MATH 7375). Finite dimensional vector spaces, matrices, tensors, vector fields, function spaces, differential and integral operators, transform theory, partial differential equations. PREREQUISITE: Background in ordinary differential equations and linear algebra.

7376. Methods of Mathematical Physics II. (3). (Same as MATH 7376). Continuation of PHYS 7375. Complex variable theory, asymptotic

expansions special functions, calculus of variations, additional topics on matrices and operators, topics in non-linear analysis. **PREREQUISITE:** PHYS 7375.

7385. Methods of Computational Physics. (3). Solution of problems in macroscopic and atomic-level problems in physics by numerical analysis and computer simulation, with emphasis on the accuracy and efficiency of large-scale computations and the physical interpretation of results.

7520. Statistical Mechanics. (3). Elements of kinetic theory and applications to gases, specific heats, magnetism, etc.; partition functions, introduction to Boltzmann statistics and quantum statistics. *Three lecture hours per week*

7710. Advanced Topics in Optical Spectroscopy. (3). Advanced topics in atomic and molecular spectroscopy, including the interaction of optical radiation with matter, the transition probabilities, hyperfine structure, applications of group theory to spectroscopic problems.

†7995. Seminar. (1-3). Selected topics in physics research including areas of medical physics. Students required to give oral presentation based on library or original research.

†7996. Thesis. (1-6). Original investigation of an assigned problem in the area of graduate study to be carried out under the supervision of a qualified member of the staff. This investigation will furnish the material for a thesis. Scientific articles, progress reports, and special problems of interest are reviewed and discussed by the student in seminars each semester. A maximum of six semester hours credit is allowed toward a master's degree.

†Grades of S, U, or IP will be given

POLITICAL SCIENCE

Room 437, Clement Hall
(901) 678-2395

T. DAVID MASON, PhD
Chair

ROBERT G. BLANTON, III, PhD
Coordinator of Graduate Studies

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PhD (2000), University of Rochester [2006]

AFFILIATE MEMBER

JAMES R. CARRUTH, MPA (1968), The University of Colorado;

MBA (1984), Marymount University of Virginia [2002]

- I. The Department of Political Science offers individually-tailored programs leading to the Master of Arts in Political Science. This degree provides a broad foundation in politics and government for those intending further graduate study or careers in education and public service. Both thesis and non-thesis programs are available. Also, the study of Political Science may be combined with study in related areas.

Assistantships are available for qualified students in all programs. Applications are available in Clement Hall, Room 437.

All graduate students will consult with their advisor in the Department of Political Science as to the program of study they expect to follow.

- II. The Department of Political Science offers a graduate program leading to the Masters of Arts with a major in Political Science. Special fields of study included in the Master of Arts in Political Science are: American Politics (National, State, and Urban) and Public Law; Political Theory; Public Policy and Administration; Comparative Politics, and International Relations.

III. MA Degree Program

A. Program Admission

Admission to the program will be based on selections from a pool of applicants who meet the University's Graduate School admission requirements.

Significant weight is given to the following factors in determining admissions to the MA program.

1. An undergraduate grade point average of 3.0 on a 4.0 scale from an accredited college or university.
2. GRE scores of at least 500 verbal and 500 quantitative. Miller Analogies Test (MAT) scores are not accepted for admission.
3. Letters of recommendation from two persons (one academic) familiar with the applicant's academic background or experience, specifying in detail the applicant's capabilities for graduate study.
4. A statement of approximately 1000 words indicating the applicant's present interests and career goals, including why the applicant wants the MA degree.

B. Program Requirements

1. Students who write a thesis must complete 33 hours of graduate courses including 3-6 hours of credit for POLS 7996, Thesis. Students who do not write a thesis must complete 36 hours of graduate courses.
2. All students must complete POLS 7100, Seminar in Scope and Methods of Political Science Research, and POLS 7401, Seminar in Political Theory, with grades of B or better in each course.
3. At least 24 semester hours of the courses (27 hours for the non-thesis option) must be taken at the 7000 level, twelve of which must be in Political Science.
4. No more than 6 semester hours of internship courses may be counted toward the 33 or 36 semester hour requirement.
5. Non-thesis students must pass a comprehensive examination and thesis students must pass an oral defense of their thesis. The oral defense of the thesis constitutes a comprehensive examination over all course-work.
6. Comprehensive examinations will include one exam on the core Theory and Methods (POLS 7401 and POLS 7100) and exams from any two of the following fields: American Politics and Public Law, Comparative and International Politics, Political Theory, Public Policy and Administration. A student should take a minimum of nine hours in each of the two examination fields. With the approval of the academic coordinator, a student may substitute nine hours in a collateral field for one of the two examination fields. The examination committee will consist of a chair and two other faculty, chosen by the student in consultation with the academic coordinator and the chair of the examining committee. Each of the three written exams will be graded by at least two faculty readers, at least one of whom is a member of the examination committee. Students receive a grade of "pass," "high pass," or "fail," on each of the three exams. If a student receives a grade of "high pass" on all three exams, the oral examination is waived. Otherwise, the student will, upon passing all three written exams, submit to an oral exam with the committee, to cover all three examination areas.

POLITICAL SCIENCE (POLS)

6101. Political Statistics. (3). (Same as PADM 6101). Introduction to analysis of quantitative data used to test, statistically, hypotheses in fields of political science and public and health administration.

6200. Environmental Law, Policy, and Regulation. (3). Survey of the principal federal laws, policies, and regulations concerning environmental use and protection.

6211. Constitutional Law—National Powers. (3). An analysis of the relationships and controls of the three branches and the nature of the division of power between the nation and the states, with emphasis on the role of the Supreme Court as the arbiter in the constitutional system.

6212. Constitutional Law: Origins and Evolution of Civil Liberties in US. (3). Background, role, and legitimate extent of civil rights and liberties in US.

6221. Urban Administration. (3). (Same as PADM 6221). Examination of politics, administration, and public policy in an urban context; focus on the administrative aspects of selected governmental policy-making processes; interrelationships of governments at various levels, urban challenges facing modern public administration.

6222. Urban Politics. (3). (Same as PADM 6222). Roles and processes of politics and governance in urban America in context of global, social, and economic influences on cities and suburbs.

6224. Urban Problems. (3). (Same as PADM 6224). A study of selected problems in urban administration, politics, and policies.

†6230. Legislative Internship. (3-12). Supervised internship working with the Tennessee General Assembly or other legislative bodies on current legislative programs. Seminar sessions are held to discuss and analyze the problems with which the interns are working. May be repeated for a total of 12 credits. **PREREQUISITE:** Permission of department.

6305. Post-Soviet Governments and Politics. (3). Analysis of institutions, issues, processes, and domestic policies of states comprising the former Soviet Union, with special emphasis on Russia.

6307. Government and Politics of China. (3). A study of the institutions of government, the political process, political elites, political groups, and political socialization of the People's Republic of China.

6312. Government and Politics of Japan. (3). Analysis of the political culture, government institutions, political processes, and developmental changes in contemporary Japan.

6315. Revolution and Political Violence. (3). Comparative analysis of the forms and causes of political violence within nations, including revolutions, ethnic conflict and secessionist movements, and terrorism.

6317. Transitions to Democracy. (3). Comparison of the transition from authoritarian rule to democracy in Latin America, Asia, Africa, and Eastern Europe, including consideration of the institutional design of democracy and the impact of culture on democratic transition and consolidation.

6401. Modern Political Ideologies. (3). A study of major ideologies of democracy, communism, and fascism as well as capitalism, socialism, racism, and nationalism, and ideologies of the developing or "third" and "fourth world" nations.

6405. Origin and Development of American Political Thought. (3). Origin and development of political thought in the United States from the colonial to the present time, with emphasis placed on the relation between political thought and political institutions and practices.

6502. Post-Soviet Foreign Policies. (3). Basic concepts and methods of analyzing the international relations and foreign policies of post-Soviet territory, with emphasis on Russia.

6504. International Law. (3). An analysis of the nature, scope, duties, rights, and evolutionary trends of international law.

6506. Problems in American Foreign Policy. (3). Studies or problems of American foreign policy. May be repeated for a maximum of 6 hours credit with permission of instructor.

6508. Theories and Concepts in International Relations. (3). Theoretical approaches to study of international politics. Consideration of various schools of thought, methods, and substantive literatures.

6510. Politics of the Global Economy. (3). Consideration of manner in which political processes affect and are affected by economic processes at global level.

6511. International Conflict. (3). Sources of conflict between nations, including characteristics of the international system, national attributes, and decision making.

6601. Political Psychology. (3). The impact of psychological dynamics and states, including socialization, cognition, attitude, and motivation on political outcomes such as voting behavior, ethnocentrism, and decision making. Particular emphasis will be given to the application

of social psychological concepts and theories as well as to experimental methods.

6710-19. Special Topics in Political Science. (1-3). Topics of current significance in public issues. May be repeated for a maximum of 6 credit hours with permission of the chair or graduate coordinator.

6820. Zionism (3). (Same as JDST 6820). This study of the Zionist movement that led to the establishment of Israel covers Jewish social and political thought over the last 150 years, imparting a detailed understanding of where the State of Israel came from and why the issues surrounding Israel are so significant to the world.

7100. Seminar in Scope and Methods of Political Science Research. (3). Survey of major theoretical approaches to study of politics with emphasis on both analytic and empirical aspects of political inquiry.

7201-8201. Seminar in American Politics. (3). Selected topics in American government and politics. May be repeated for a maximum of 6 credit hours.

7202-8202. Seminar in Government of the United States. (2-3). Analysis of the principal institutions of the federal government of the United States, including Congress, the Presidency, and the Supreme Court.

7225. Seminar in Problems in State Government. (3). Selected policy making processes and policy problems arising from the operation of legislative, administrative, and judicial machinery. Special attention will be given to Tennessee.

7302-8302. Seminar in Comparative Politics. (3). Selected topics in comparative politics. May be repeated for a maximum of 6 credit hours.

7303. Seminar in Political Development. (3). Comparative study of the process of political change in the nations of the third world.

7401-8401. Seminar in Political Theory. (3). Contribution of political philosophy to full understanding of politics is illustrated through selected topics. May be repeated for a maximum of 6 hours.

7501-8501. Seminar in International Relations. (3). Selected topics in international politics and foreign policy. May be repeated for a maximum of 6 credit hours.

7502-8502. Seminar in International Conflict and Security. (3). Comparative and theoretical examination of how national and international actors conceptualize, identify, perceive, and address threats to their security; includes technological and social change, capabilities and limitations of defense decision makers and bureaucracies, and role of international institutions.

†7503. Reading for Comprehensives. (3). Arranged on an individual basis for graduate students in political science, public administration, or health administration only. **PREREQUISITE:** Completion of degree requirements or in the last two semesters of program.

7504-8504. Seminar in Government of Western Europe. (2-3). Politics and policies of Western Europe, with emphasis on the nations of Britain, France, and Germany and integration processes occurring within the European Community.

7505-8505. Seminar in Latin American Politics. (2-3). Developmental challenges that confront Latin American nations, configurations of political institutions with which those nations address those challenges, and changing patterns of state-society relationships that result from the politics of development in Latin America.

7506. Seminar in Foreign Policy. (3). Analysis of the conduct and formulation of foreign policy.

7510. Seminar in the Politics of the Global Economy. (3). Analysis of the interactive relationship between global political and economic processes.

7604-8604. Social Science and the Law. (3). (Same as PADM 7604). Applications of social science to such public policy questions as discrimination, obscenity, parole, trademarks, death penalty, child custody, and criminal offender profiles.

7702-8702. Independent Study. (1-3). May be repeated for a maximum of six hours. Independent investigation of research problems or directed readings in selected area of political science. **PREREQUISITE:** Permission of instructor.

7710-19-8710-19. Special Topics in Political Science. (1-3). Intensive study of selected topics in political science. May be repeated for a maximum of 6 hours.

†7996. Thesis. (1-6). The student must write and defend satisfactorily a thesis on a subject approved by the major professor.

†Grades of S, U, or IP will be given

PSYCHOLOGY

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AFFILIATE MEMBER**MARK VANDER WEG**

PhD (1998), The University of Memphis [2003]

- I. The Department of Psychology offers PhD programs in Clinical Psychology, Experimental Psychology, and School Psychology, an MA (terminal, non-thesis) program in School Psychology, and an MS (either thesis or non-thesis) program in General Psychology. Students admitted to one of the PhD programs complete the requirements for the MS in General Psychology (with thesis) as part of their PhD requirements. An EdS degree with a major in Education and a concentration in School Psychology is also available (offered collaboratively with the College of Education). In addition, the MS in General Psychology program may be entered as a terminal program.

Admission to each of these programs is handled separately. Each has its own admission criteria, and application must be made for a particular program before an applicant is considered for that program. Any person admitted to one of these programs who desires to transfer to another program within the department must make formal application to that program and will be evaluated competitively against the same criteria and on the same time schedule as all other applicants for that program.

The departmental objective is to educate both experimentally sophisticated professional psychologists and professionally appreciative research psychologists. The department professes a strong research emphasis, with a very diverse array of theoretical models and frames of reference represented on the faculty.

For all of the following graduate programs, admission is not automatic by meeting minimal departmental admission requirements. Students are selected from a pool of qualified applicants to each program. Each year the number of students admitted to a program depends on availability of financial aid and adequate faculty supervision.

II. MS/PhD Degree Program

In these programs the MS is preparatory to continuation in the program. In order to be advanced to doctoral study, a student must have satisfactorily completed all requirements for the MS (with thesis) at The University of Memphis, or have completed an equivalent degree from another institution. Students possessing a master's degree without a thesis will be required to complete a thesis before being advanced to doctoral study.

There are three broad programs within the MS/PhD degree program: Clinical Psychology (APA approved), School Psychology, and Experimental Psychology. Faculty and students from all three programs participate in six research areas: Adult Psychopathology and Psychotherapy, Behavioral Medicine and Community Psychology, Child and Family Studies, Cognitive and Social Processes, Neuropsychology and Behavioral Neuroscience, Research Design and Statistics. Students interested in other areas should contact the department for further information.

A. Program Admission and Prerequisites

Applicants to the MS/PhD degree program are evaluated once each year only, for admission in the Fall semester; applicants for Spring admission are not considered. All application information must have been received by February 1 for a candidate to be considered for admission.

Required:

1. A grade point average of at least 2.5/4.0 in all undergraduate course work. Applicants with undergraduate records at this minimum level are not ordinarily admitted.
2. A minimum of 18 semester hours in undergraduate psychology courses, including courses in Quantitative Methods (Psychological Statistics), and Experimental Psychology; undergraduate coursework in Physiological Psychology, Psychology of Learning, and History of Psychology is strongly recommended.

Students lacking some or all of these prerequisite courses, but presenting an exceptional undergraduate record, may be granted graduate admission, but they will be expected to remove all undergraduate deficiencies during their first academic year.

3. GRE scores (Verbal, Quantitative, Analytic) are taken into account in the admissions process.
4. Letters of recommendation from at least three persons familiar with the applicant's academic background and aptitude for graduate work in psychology, specifying in detail the applicant's capabilities for graduate study and for future performance as a psychologist.
5. A statement of 500-1000 words indicating the specific graduate program area being applied for, the applicant's present interests and career goals, research and applied interests, and prior research and applied experience. Prior undergraduate research interests and research involvement are weighted heavily.
6. A willingness to be interviewed by members of the department faculty, should that be required.

B. Program Requirements

1. Credit Hours: A minimum of 33 semester hours of graduate credit beyond the bachelor's degree is required for the MS degree in Psychology, and a minimum of 80 semester hours of graduate credit beyond the bachelor's degree is required for the PhD degree in Psychology. However, most students in this department take between 90 and 100 credits in courses, seminars, and applied and research practica in road to the PhD degree. All work for graduate credit must be approved by, and must be completed at a level of performance satisfactory to, the graduate faculty of the department. No minor is required; students may take coursework for degree credit outside the department upon prior approval of the graduate faculty of the department.

Students with graduate credits earned at another institution, upon matriculation at The University of Memphis, may petition to have these credits applied toward their degree requirements at The University of Memphis. While such credits are not automatically transferred and must be approved by the area faculty, a maximum of 6 semester credit hours earned elsewhere may be applied toward the master's degree requirements. For transfer students who have attained a master's degree elsewhere, a maximum of 50 semester credit hours may be applied toward the PhD degree requirements.

Particularly where students are specializing in a professional area, the awarding of the doctorate does not merely attest to the accumulation of the specified number of hours in the classroom but also to the acquisition of sophisticated professional and research skills. The faculty has the responsibility to both the public and the profession of psychology to award this degree only when the student has achieved a satisfactory level of professional and research competencies as judged by the graduate faculty of the department. Further, students must exhibit high integrity and moral character consistent with the standards of ethical principles set forth by the American Psychological Association and Tennessee law.

2. Enrollment: With only rare exception, all MS/PhD degree candidates are expected to carry a minimum of 12 credits per semester, and to devote full time during their enrollment to pursuit of degree-related activities.
3. Research: All MS/PhD degree students are expected to be active in research collaboratively with members of the department faculty each semester they are enrolled.
4. Master's Thesis (PSYC 7996) and MS Comprehensive Examination: Each MS student is expected to complete an independent research project, culminating in a master's thesis. As students are only able to apply 3 hours of thesis credit toward their degree program, student enrollment in thesis hours is restricted to the semester that they defend. That semester they are able to enroll for 3 hours. If the thesis is not successfully defended, the student must continue to enroll for 1 hour of thesis credit each semester enrolled until the defense is completed. Upon completion of the thesis, the student takes an oral examination which assesses not only mastery of the thesis topic but also broader awareness of the theoretical and empirical issues in contemporary psychology. This oral examination serves as the M.S. comprehensive examination.
5. Specialty Examination: Each PhD student will take a comprehensive written, oral, and performance examination in the student's major area of specialization in psychology, typically during the third or fourth year of residence. Major Area Papers (PSYC 8620) may be used as an option to the written specialty examination.
6. Comprehensive Educational Program: In order that all MS/PhD candidates obtain comprehensive training in the diverse areas of psychology, they are required to complete PSYC 7301, 7302, 7303 during the first two years. In addition, all MS/PhD candidates must complete a third statistics/quantitative course approved by the department plus at least one course in each of the following four areas:
 - a. Biological Bases of Behavior: PSYC 7701/8701; 7702/8702, 7703/8703, 7704/8704, or 7506/8506 for School Psychology students.

- b. Cognitive-affective Bases of Behavior: PSYC 7208/8208, 7210/8210, 7211/8211, 7222/8222, 7801/8801, or 7207/8207 for School Psychology students.
- c. Social Bases of Behavior: PSYC 7200/8200, 7206/8206, 7215/8215, 7217/8217, 7219/8219, 7220/8220, or COUN 7531/8531 for School Psychology students.
- d. Individual Behavior: PSYC 7207/8207, 7219/8219, 7412/8412, 7416/8416, 7420/8420, 7516/8516, or 7802-8802 for School Psychology students.

- 7. Dissertation and Final Examination (PSYC 9000): Upon completion of an independent dissertation research project acceptable to the faculty, each student will take a final oral examination oriented toward, but not exclusively on, the student's dissertation research and major area of specialization.

Students in the clinical psychology program are expected to meet these additional requirements:

- 8. Required Courses and Activities for Clinical Students: Students in the clinical psychology program must complete the following courses: PSYC 7412/8412, 7428/8428, 7430/8430, 7432/8432, and 6 credit hours of PSYC 7434/8434 (two courses of 3 hours credit each under two different clinical faculty members). As part of their clinical training, they must also participate in the activities of the Psychological Services Center. Students fulfill this requirement sitting in on the psychotherapy supervision of advanced clinical students for at least one-half hour per week during the first year and by enrolling in 7438/8438, 3 credits in the fall and 3 credits in the spring, during each of years two, three, and four in the clinical program.

Funding during years two and three is fully integrated with scientist/practitioner training. Clinical students are required to take a one-year clinical practicum in an external agency and a one-year departmental research assistantship. The sequence of these two years will be determined on an individual basis. Funding during year four will be available at the students' option. The type of funding during year four may be in either of these areas depending upon (a) personal preference, (b) educational need, and (c) funding source availability.

(a) Clinical Program Students in the Neuropsychology and Behavioral Neuroscience Research Area—In addition to the general clinical requirements, clinical program students in the Neuropsychology and Behavioral Neuroscience Research Area must complete the following courses: PSYC 7701/8701, 7702/8702, 7703/8703, 7704/8704; nine credit hours of PSYC 7608/8608; nine credit hours of PSYC 7616/8616; and coursework in the areas of neuroanatomy and neuropathology.

(b) Clinical Program Students in the Child and Family Studies Research Area—In addition to the general clinical requirements, clinical program students in the Child and Family Studies Research Area must complete the following courses: PSYC 7207/8207, 7219/8219, 7416/8416, 7804/8804, and 7808/8808. Further, the requirement of two psychotherapy courses applicable to all clinical students must consist of family therapy (which may be satisfied by 7417/8417) and child behavior therapy (which may be satisfied by 7418/8418). Further, a major portion of practicum work must involve children, and the master's thesis and doctoral dissertation must pertain to children.

(c) Clinical Program Students in the Adult Psychopathology and Psychotherapy Research Area. In addition to the general clinical requirements, clinical program students in the Adult Psychopathology and Psychotherapy Research Area must complete the following courses: PSYC 7516/8516 and 7027/8027. In addition, students must complete a third section of PSYC 7438/8438 and the student's specialty exam and dissertation must relate to psychotherapy and/or psychopathology, as approved by the student's major professor.

- 9. Clinical Internship: For students in clinical psychology, a full-time one-year internship, in an agency approved by the director of training in clinical psychology, is required. A student cannot accept an internship unless the dissertation proposal has been approved in January of the year that the internship starts. Further, the dissertation data must be collected before the student can begin internship unless the internship agency gives written permission to the student to collect data while on internship.

- 10. Students in the School Psychology concentration of the Child and Family Studies Research Area must complete a total of 102-108 graduate hours including: PSYC 7800/8800, 7803/8803, 7804/8804, 7805/8805, 7806/8806, 7807/8807, 7808/8808 and RDNG 7541/8541, COUN 7582/8582, LEAD 7004, EDPS 7112/8112, and SPED 7000/8000.

Electives (18 hours); students may choose to take all electives in a subspecialty area to be determined with the advisor.

Practicum 7614/8614 (3-9 hours) and Internship 7812/8812 (12 hours).

III. MA and EdS Degree Program in School Psychology

This program is offered collaboratively with the College of Education, and coursework from both areas is required. Students entering the program must complete both the MA and the EdS degrees, including an internship of one school year, in order to obtain an endorsement for certification. The EdS degree is an advanced sequence in the specialty and is to be pursued only by persons who have completed the MA degree or comparable degree with a concentration in school psychology, or who already hold school psychology

certification. The program is part of the College of Education unit, accredited by the National Council for Accreditation of Teacher Education (NCATE), and has met the folio review requirements of the National Association of School Psychologists (NASP)/NCATE Guidelines; also, it is formally approved by the Tennessee State Department of Education and leads to that agency's license in school psychology.

A. Program Admission and Prerequisites

1. An undergraduate overall grade point average of 3.00/4.00. Applicants with an undergraduate GPA below this minimal level are admitted only if other supporting data are exceptional.
2. GRE scores (Verbal, Quantitative, Analytic) are taken into account in the admissions process.
3. Letters of recommendation from at least three persons familiar with the applicant's academic background, aptitude for graduate work in school psychology, and interest in working with school-age children in school settings; professional educators, psychologists, and/or employers.
4. Undergraduate preparation in Psychology and/or Education. It is strongly recommended that applicants have at least 18 undergraduate hours in Psychology and/or Education, with preparation in the psychology of learning, psychological appraisal/measurement human growth and development, and foundations of education. Those admitted must take a minimum of 9 hours each semester.

B. Program Requirements—MA Degree (36 credits)

1. Psychology courses (21 hours): PSYC 7800, 7207, 7802, 7803, 7804, 7805, 7806.
2. Education courses (15 hours): EDPR 7121, EDRR 7511 and 7541, LEAD 7004, SPED 7000 (or SPED elective if characteristics of exceptional children course was taken at the undergraduate level).
3. Oral examination.
4. Participation in service experiences in the Psychological Services Center or other agency placements for training purposes.

C. Program Requirements—EdS Degree (30 credits)

1. Psychology courses (9 hours): PSYC 7614 (6 hours), 7301 or research elective.
2. Education courses (9 hours): EDPR 7112, RDNG 7541 or 7542, COUN 7542.
3. School Psychology Internship (PSYC 7812, 12 hours) is taken at or near the completion of other work.
4. Written examination.

IV. MS Degree Program in General Psychology

A. Program Admission and Prerequisites

1. An undergraduate grade point average of 2.5/4.0 is required for admission without special permission.
2. GRE scores (Verbal, Quantitative, Analytic) are taken into account in the admissions process.
3. Letters of recommendation from at least three persons familiar with the applicant's academic background and aptitude for graduate work in Psychology.
4. It is strongly recommended that applicants have 12 undergraduate hours in psychology, including a course in statistics.
5. Applications to the MS in General Psychology program will be considered in the fall semester.

Admission to the MS in General Psychology program does not require a student to take any minimum number of credits per semester. The only constraint upon the pace at which the student pursues the degree is that credits more than six years old may not be counted toward the degree.

B. Program Requirements

1. All students in the MS in General Psychology program must be in good academic standing at the end of 15 credit hours of graduate work in order to continue in the program.
 - (a) PSYC 7301 or equivalent
 - (b) PSYC 7302 or equivalent
 - (c) At least one of PSYC 7206, 7207, 7208, 7210, 7217, 7219, 7701
 - (d) Six additional credit hours of graduate work in Psychology exclusive of field practice, research practice, clinical practice, seminars, and special topics courses (unless specifically designated otherwise) and core clinical courses (7431, 7432, 7433, 7434).
2. On completion of the first 15 hours, it is expected that the student will, in consultation with the coordinator or major professor, have decided on goals and objectives for the remainder of the course of study. Courses that fit these goals and objectives may be in Psychology or other departments in the university. Students who are not in good academic standing at this time must institute an appeal with supporting letters to the Coordinator and MS in General Psychology Committee for consideration of continuance in the program. Such cases will be considered on an individual basis.
3. A total approved program of 33 credit hours if the student elects to do a thesis, or 36 credit hours without a thesis.
4. A specialty examination covering the student's area(s) of focus will be taken during the last semester in the program.

PSYCHOLOGY (PSYC)

7000-8000. Issues in General Psychology (3). Required of all Experimental and School Psychology doctoral degree candidates. Seminar of basic issues in contemporary psychology within their historical context with extensive examination of their implications for theoretical and professional applications.

7010-29-8010-29. Special Topics in Psychology. (1-3). Topics are varied and announced in *Schedule of Classes*.

7108-8108. Psychology and Law. (3). Interface between law and psychology, covering such topics as malpractice, competency or insanity hearings, divorce and child custody, commitment procedures, right to treatment, and confidentiality. Of particular interest to students planning to practice as professionals. PREREQUISITE: Admission to graduate training program in Clinical Psychology or permission of instructor.

7110-8110. Ethics and the Practice of Psychology. (3). In-depth review of the ethical standards that impact work of psychologists in health services, consultation, teaching, and research settings; emphasizes ethical issues and dilemmas, mastery of ethical decision-making, understanding community standards for practice, and the interface between ethical guidelines and the law.

7203-8203. Behavior Analysis. (3). A comprehensive treatment of behavioral principles in their application to simple and complex forms of behavior. The course focuses on operant conditioning of animal behavior and demonstrates the basic behavioral principles at work in their simplest form. These operant conditioning principles are extended to human behavior occurring in the natural environment. Increasingly complex human behaviors are successively introduced.

7206-8206. Group Processes. (3). Social psychology of groups and organizations including social influence, leadership, and inter- or intra-group behavior.

7207-8207. Developmental Psychology. (3). An analysis of the course of development from conception to young adolescence in the "normal" individual. Emphasis on developmental methodologies and theories in the areas of physical and motor development, and cognitive and intellectual functioning.

7208-8208. Psychology of Perception. (3). An examination of the historical development, research, and major theoretical positions in the area of perceptual psychology. Major emphasis is placed on theoretical and experimental treatment of the basic perceptual phenomena.

7211-8211. Cognitive Processes. (3). Analyses of thinking, conceptualization, language and symbolic activity, and related meditational processes in the individual.

7212-8212. Industrial Psychology. (3). Examination of the content and methodology used by industrial psychologists in personnel selection, classification, training, and performance evaluation. Students are familiarized with the skills necessary for these activities, as well as the guidelines and legal constraints on organizations' hiring, promotion, and performance evaluation practices.

7213-8213. Personnel Psychology. (3). An in-depth study of the theories and procedures used by personnel psychologists to conduct job analyses and apply the findings to the development of valid and reliable selection/promotion strategies and performance measurement instruments. The course includes a significant amount of hands-on experience so students acquire the knowledge and skills to competently carry out these activities in applied settings. PREREQUISITE: 7211/8211.

7214-8214. Industrial and Organizational Training. (3). Examination of the content and methodology used by industrial psychologists to develop, implement, and evaluate training programs in work settings. Students acquire the skills to conduct training needs assessments, select from various training platforms, develop training programs, and assess the degree to which they accomplish their organizational objectives. The course includes exposure to new computer-based and web-based training technologies.

7215-8215. Organizational Psychology. (3). The course deals with the major organizational determinants of individual and group behavior and performance. The characteristics of organization structure and climate are explored from both a classical and a contemporary

viewpoint. Organization change and development theories are examined plus the major ancillary theoretical positions on leadership, individual and group performance, behavior modification, selection and training.

7216-8216. Behavior Management. (3). Application of the principles of operant/instrumental learning to human behavior change in various organizational, educational, and rehabilitative settings. Practical implementation of the principles of behavior analysis and management will be stressed and expected of the student. PREREQUISITE: PSYC 7203-8203 or equivalent.

7217-8217. Social Psychology. (3). Review of theoretical and empirical literature examining behavior and experience of individuals in social settings; includes coverage of attributions and interpersonal perception, attitude formation and change, prejudice and stereotyping, interpersonal attraction, social influence, human aggression, and prosocial behavior.

7218-8218. Increasing Organizational Productivity. (3). Examination of the theories and methodologies used to diagnose organization problems, determine their causes, and select, implement, and evaluate interventions to mitigate the problems and increase organizational productivity. Students acquire a knowledge base and specific skills employed by organizational psychologists to help effect organizational improvements. The course involves lecture, discussion, and group projects.

7219-8219. Social and Personality Development. (3). A general survey of social and personality development from infancy through adolescence. The course consists of three sections: (1) general theoretical perspectives, including intrapsychic, cognitive, and social learning approaches; (2) intra-individual phenomena such as sex role, traits, moral development, etc.; (3) inter-individual phenomena such as family interactions, peer interactions, and societal influences.

7220-8220. Social Cognition. (3). Review of major contemporary issues in social psychology from a social cognitive perspective; cognitive-information processing approach as it applies to social psychology; attributions, schemas, attention and perception, impression-formation and social memory, accessibility and priming, the self, and decision making.

7222-8222. Psychology of Human Memory. (3). Major theoretical and empirical issues in the study of human memory; major emphasis on nature of structures and processes involved in memory encoding and retrieval and nature of representations available to memory.

7301-8301. Research Design and Methodology. (3). Emphasis on mathematical and nonmathematical analyses of psychological data, theoretical and experimental implications of different analyses, various data collection techniques, and types of experimental and statistical control; ethical issues and ethical principles of research conduct.

7302-8302. Advanced Statistics in Psychology I. (3). Introduction to general linear model; multiple regression analysis, and single- and multiple-factor analysis of variance; emphasis on using software programs to perform statistical analyses. PREREQUISITE: PSYC 3001 or equivalent.

7303-8303. Advanced Statistics in Psychology II. (3). Intermediate and advanced topics related to analysis of variance, including fixed and random effects, repeated measures, non-orthogonal designs, and the analysis of covariance; traditional analysis of variance concerns within framework of general linear model; scales of measurement, planned and post hoc comparisons, power analysis and concept of effect size. PREREQUISITE: PSYC 7302 or equivalent.

7304-8304. Measurement Theory and Psychometrics. (3). Measurement theory involved in the construction and evaluation of psychological measuring instruments will be stressed. Particular emphasis will be placed on scaling methods and their use in psychological research and evaluation.

7305-8305. Quantitative Methods for Reviewing Research. (3). Quantitative procedures (meta-analysis) for reviewing research findings in psychology and other social sciences; techniques for locating and coding research studies, calculating effect sizes, and analyzing study findings. PREREQUISITE: Permission of instructor.

7306-8306. Linear Structural Modeling. (3). Path models, path analysis, cross-lagged panel studies, confirmatory factor analysis, and complete

latent variable causal models, including applications of latter to experimental and non-experimental data.

7307-8307. Models of Program Evaluation. (3). History and nature of program evaluation, review of different approaches taken to evaluation by variety of major theorists in the field; practice in evaluation.

7308-8308. Multivariate Analysis of Variance. (3). Multivariate analysis of variance (MANOVA) with independent designs and its extension to repeated measures ANOVA. Goals include review conceptual bases, learn SPSS procedures, analyze simple and complex designs, and learn special post hoc procedures. PREREQUISITE: PSYC 7302 or equivalent.

7309-8309. Focus Group Research in Psychology. (3). Examination of the general logic of focus group research, including strengths and weaknesses of this approach. Methodology will be covered in depth, including how to plan a project, development of questions for a focus group, moderating the group, and analyzing and reporting data. Completion of a semester project is required.

7310-8310. Mixed-Model Regression. (3). Instruction in the use of mixed-model regression with a focus on design and analysis of group-randomized trials. Attention will also be given to analysis of data from surveys based on cluster sampling, longitudinal studies, and studies involving matching. PREREQUISITE: PSYC 7301, 7302, and 7303 and permission of instructor.

7311-8311. Applied Categorical Data Analysis. (3). Instruction includes tabular, logistic, and Poisson and Cox regression, as well as interpretation of SAS output. For advanced students in psychology, education, and public health pursuing a career in research. PREREQUISITES: PSYC 7301, 7302, 7303, and permission of instructor.

7312-8312. Qualitative Research Methods in Psychology. (3). Examines history and current practice of research stemming from a human science philosophy, introducing a variety of qualitative methodologies. Through examining differences and similarities in human and natural sciences, students learn to appreciate the significance of philosophy on research practice. PREREQUISITE/COREQUISITE: PSYC 7301.

7411-8411. Psychotherapy Process Research. (3). Investigates current practice of examining effects of interventions within sessions, of therapy events, and of differences in psychotherapy orientations. Through examining mock therapy transcripts and interviews, students build skills toward independent implementation of psychotherapy or interview-related research. PREREQUISITE: PSYC 7437/8437.

7412-8412. Psychopathology. (3). Survey of the manifestations of abnormal behavior and psychological processes; detailed analysis of clinical and experimental literature concerning psychological and psychiatric disorders and their etiology. Historical principles are emphasized. PREREQUISITE: Permission of instructor.

7416-8416. Child Psychopathology. (3). A survey of the major theoretical formulations of childhood disorders, including learning, developmental, psychoanalytic, and family systems theories. Organic, familial, and sociocultural influences are discussed. Emphasis is placed on basic research that contributes to our understanding of these difficulties. Traditional approaches to intervention are reviewed along with family treatment. PREREQUISITE: Permission of instructor.

7418-8418. Behavior Therapy with Children. (3). Applications of learning models to effect behavioral change in children reviewed from theoretical, experimental, and clinical perspectives. Emphasis on intervening in natural environment and using parents, teachers, and peers in treating problems such as low academic achievement, inadequate social skills, hyperactivity, and child abuse. A substantial practicum component may be added to the course that requires the student to provide therapy to at least one child. PREREQUISITE: Permission of instructor.

7420-8420. Personal Construct Theory. (3). In-depth seminar on personal construct theory, a cognitively oriented theory of personality stemming from work of George Kelly. Philosophical assumptions and basic theory; use of repertory grid technique and its application to research on such topics as cognitive complexity, development, interpersonal relationships, psychopathology, and psychotherapy.

7428-8428. Foundations of Clinical Psychology. (3). Introduction to fundamental concepts and methods of clinical psychology conceived as application of scientific reasoning to human problems; historical and scientific foundations for scientist-practitioner model, and various

roles of clinical psychologist in social context; ethical, legal, and multicultural issues emphasized. PREREQUISITE: Admission to graduate training program in clinical psychology.

7430-8430. Clinical Assessment: Abilities and Achievement. (3). Introduction to psychological assessment of cognitive abilities and achievement; exposure to basic psychometric concepts; observation and interpretation of assessment related to behavior; specific emphasis on development of assessment skills such as test administration, test interpretation, and report writing; ethical and legal issues of professional conduct emphasized. PREREQUISITE: Permission of instructor.

7432-8432. Clinical Assessment: Case Conceptualization. (4). Comprehensive review of fundamental concepts and practices of clinical assessment conceived as the application of scientific reasoning to problem of case conceptualization; development of conceptualization skills with integrating of interview, objective assessment, and systematic observations; evaluation of different assessment approaches for empirical support and utility in case management; critical and analytic thinking emphasized; ethical and legal issues of professional conduct emphasized. PREREQUISITE: Permission of instructor.

7434-8434. Clinical Psychotherapies. (3). In-depth study of methods of psychotherapy and intervention strategies, their basic assumptions, spheres of applicability, and typical outcomes. Therapeutic approach covered will depend upon the particular instructor. May be repeated for maximum of 20 credits with change in topic. PREREQUISITE: Permission of instructor.

7435-8435. Introduction to Psychotherapy. (3). Required for all clinical students. Surveys major traditions of psychotherapy—psychodynamic, humanistic, cognitive-behavioral, and systemic—considering originators' works as well as contemporary exponents; includes didactic (reading, discussion) and experiential learning (exercises, role plays) to promote both conceptual and practical acquaintance with the implications of each tradition. PREREQUISITE: Permission of instructor.

7437-8437. Clinical Special Studies. (1-3). Provides advanced conceptual discussion and supervised skill training in a variety of techniques not routinely covered in detail previously, thus amplifying in depth such clinical procedures as neuropsychological group therapy, implosive techniques, aversion methods, systematic desensitization, the design and execution of broad spectrum composite change programs, "inpatient management," and therapeutic community approaches. PREREQUISITE: Permission of instructor.

7438-8438. Practicum in Clinical Treatment Approaches. (1-3). Practical experience to students in clinical psychology, permitting them to work under professional supervision for 42 therapy sessions in the Psychological Services Center. Students conduct intake interviews, administer and interpret psychological tests, and provide therapy. May be repeated for maximum of 24 hours credit. PREREQUISITE: Admission to graduate training program in clinical psychology.

7440-8440. Behavioral Medicine I: Adult. (3). Introduction to research and clinical practice in adult behavioral medicine, including stress, coping, and emotion in relation to health, health attitudes and behavior change, treatment adherence, pain management, impact of medical illness on patients and families, and psychological assessment and treatment of medical patients. PREREQUISITE: Permission of instructor.

7441-8441. Behavioral Medicine II: Pediatric Psychology. (3). Introduction to research, consultation, clinical intervention, and health promotion with pediatric and healthy populations of youth. Survey of children's health attitudes and behaviors, psychosocial assessment and intervention in outpatient and inpatient medical settings. PREREQUISITE: Permission of instructor.

The following seminars are systematic studies of current topics in the fields listed in the course titles. Only nine hours may be counted toward degree requirements.

7501-8501. Seminar: General Psychology. (3).

7503-8503. Seminar: Experimental Psychology. (3)

7505-8505. Seminar: Quantitative Psychology. (3).

7506-8506. Seminar: Clinical Psychology. (3).

7507-8507. Seminar: Industrial Psychology. (3).

7508-8508. Seminar: Research Design and Statistics. (3).

7509-8509. Seminar: School Psychology. (3).

7510-8510. Seminar: Organizational Psychology. (3)

7512-8512. Seminar: Developmental Psychology. (3)

7514-8514. Seminar: Cognitive Science. (3).

7515-8515. Seminar: Social Psychology. (3).

7516-8516. Issues in Psychotherapy Research. (3). Research evidence pertaining to basic questions about psychotherapy and its effectiveness; classic contributions and current research findings.

†7520-8520. Teaching Skills for Graduate Assistants. (3). Overview of teaching responsibilities and skills and discussion of teaching issues for graduate teaching assistants; supervised practical experience teaching college courses and feedback on performance. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Permission of graduate coordinator.

The following research practicum courses are individualized advanced laboratory or field research activities in the areas listed in the titles. Any of the practica may be repeated for up to 12 hours. The same practicum number may be repeated for up to 12 hours at the 7000 level and up to 12 hours at the 8000 level.

†7601-8601. Research Practicum: General Psychology. (1-3).

†7602-8602. Research Practicum: Physiological Psychology. (1-3).

†7603-8603. Research Practicum: Experimental Psychology. (1-3).

†7604-8604. Research Practicum: Comparative Psychology. (1-3).

†7605-8605. Research Practicum: Social Psychology. (1-3).

†7606-8606. Research Practicum: Clinical Psychology. (1-3).

†7607-8607. Research Practicum: Developmental Psychology. (1-3).

†7608-8608. Research Practicum: Neuropsychology. (1-3).

7609-8609. Research Practicum: School Psychology. (1-3).

†7610-8610. Field Practicum: Clinical Psychology. (1-6). Supervised experience in the use of psychological diagnostic, treatment, or community intervention procedures in various community agencies and facilities. May be repeated for a total of 12 credits. PREREQUISITE: Admission to the graduate training program in Clinical Psychology, or consent of instructor.

†7611-8611. Field Practicum: Social Industrial Psychology. (1-3). Seminar discussion and supervised experience in the application of basic psychological procedures and principles to social, personnel, and organizational activities in various industrial, military and community settings. May be repeated for a maximum of 9 credits.

†7614-8614. Practicum: School Psychology. (3). Supervised experience in the application of psychological procedures in educational and clinical settings. A minimum of two practica are required. First practicum required grades of 3.0 or better in PSYC 7803 and 7804; second requires 3.0 or better in PSYC 7805 and 7806, and S in first practicum. May be repeated for a maximum of 12 credits. PREREQUISITE: Admission to graduate training program in school psychology and permission of instructor.

7615-8615. Special Problems. (1-3). Independent investigation of a research problem, or directed readings, in a selected area of psychology chosen in consultation with the instructor. Only six hours credit may be applied to the degree. May be repeated for a maximum of 6 credits. PREREQUISITE: Permission of instructor.

†7616-8616. Clinical Practicum: Neuropsychology. (3). The advanced student interested in neuropsychology will receive supervised experience in the use of psychodiagnostic techniques in various community settings; training will cover basic diagnostic techniques, specialized diagnostic techniques, and neurological assessment procedures. May be repeated for a maximum of 9 credits. PREREQUISITE: Permission of instructor.

†7617-8617. Seminar in Research Methodology. (3). Research seminar for students planning thesis/ dissertation work, developing other research projects, or interested in learning more about research design issues; offers structured forum to present research ideas, receive advice on issues of design and analysis, and critique research designs of others.

†7618-8618. Research Practicum: Cognitive Psychology/Science. (1-3). May be repeated for a maximum of 3 credits.

†7619-8619. Research Practicum: Child and Family Studies. (1-3). May be repeated for a maximum of 3 credits.

†7621-8621. Research Practicum: Introduction to Department Research. (3). This practicum is required of all first year doctoral students and may be taken by General Psychology Masters students. This course serves to introduce the student to research currently being conducted by faculty in the Department of Psychology.

7701-8701. Neuropsychology I. (3). A comprehensive study of the relationships between brain function and behavior; anatomy and physiology of the nervous system will be reviewed; major emphasis on various functional systems of the human brain such as language, learning, attention, activation, and memory.

7702-8702. Neuropsychology II. (3). Historical circumstances affecting development of neuropsychology, investigation of the various techniques available for assessing central nervous system function, brain-behavior relationships, and normative and actuarial data; emphasis on strategies for assessing cerebral dysfunction and patterns of symptoms. PREREQUISITE: PSYC 7701.

7703-8703. Neuropsychology III. (3). Selective review of theoretical, research, and applied issues in child neuropsychology, human brain development, hemispheric specialization, plasticity and effects of early trauma; childhood disorders associated with definite or suspected neurological impairment or dysfunction; introduction to child neuropsychological assessment as well as remediation and treatment of brain-related disorders in children. PREREQUISITE: PSYC 7701 or permission of instructor.

7704-8704. Neuropsychology IV. (3). Examination and discussion of current research in learning as it relates to nervous system function and damage to the anatomical substrates of such function. Emphasis on behavioral plasticity and recovery of function following destructive lesions. Other topics include memory, reinforcement, motivation and sensory substitution. PREREQUISITE: PSYC 7701.

7705-8705. Neuropsychopharmacology. (3). Introduction to the principles of neuropsychopharmacology starting from a grounding in pharmacology and neuronal structure and function, and progressing through neural communication, neurotransmitters, receptor theory, and the principles of drug action in the peripheral and central branches of the nervous system; culminates with overviews of the major mental illnesses, schizophrenia, Parkinson's disease, Alzheimer's disease, anxiety and depression; the psychotropic drugs used in their treatment in addition to descriptions of the behavioral paradigms used to model the disorders. PREREQUISITE: PSYC 7701 or permission of instructor.

7706-8706. Cognition and Aging. (3). Age-related changes in cognition in conjunction with aging of the central nervous system (CNS); topics include: cellular and genetic mechanisms of aging; aging and sensory information processing; differential aging of memory, spatial abilities and language; aging of higher cognitive functions. PREREQUISITES: Graduate standing and consent of instructor.

7800-8800. Introduction to School Psychology. (3). Survey of school psychology including historical foundations, roles and functions, school and community practices, standards and ethics, issues, technological developments; trends in credentialing and practice at the state and national level.

7802-8802. Children with Disabilities and their Families. (3). An overview of childhood disability and family considerations applied to psychological services in school and agency settings; agency and family visitations provide experiential learning in addition to theory and research. PREREQUISITES: Course on characteristics of exceptional children and permission of instructor.

7803-8803. Psychoeducational Assessment I. (3). Critical analysis of intellectual assessment including skill development in administration, scoring, and interpretation of major individual tests of intelligence; related psychoeducational instruments with emphasis on case study data collection and report writing. PREREQUISITE: Admission to graduate studies in psychology or permission of the instructor.

7804-8804. Psychoeducational Assessment II. (3). Critical analysis of personality assessment including skill development in administration scoring, and interpretation of major personality assessment techniques; related psychoeducational instruments with emphasis on case study data collection and report writing. PREREQUISITE: PSYC 7803 and

permission of instructor. School psychology students must have a grade of 3.0 or higher in PSYC 7803.

7805-8805. Psychological Consultation. (3). This course teaches the theory and skills needed for providing consultation to students and families in educational and clinical settings; focusing on an ecological, problem-centered model, content will include factors influencing the consultation process at the individual, group, and system level.

7806-8806. Interventions in School Psychology. (3). Students will acquire skills needed to provide individual, group, family, and crisis intervention services to children and adolescents in educational and clinical settings; course material will include empirically-validated interventions focusing on issues related to the academic, social, emotional, and psychological needs of the child/adolescent. **PREREQUISITE:** PSYC 7805-8805, COUN 7542 or equivalent.

7807-8807. Advanced Interventions in School Psychology. (3). Students will refine skills in both direct and indirect school psychological services using empirically-validated interventions; course material will cover current intervention issues in school psychology, the role of supervision in school psychology, evaluating the efficacy of interventions, and the link between assessment and treatment planning. **PREREQUISITES:** PSYC 7803-8803, 7804-8804, 7805-8805, and 7806-8806.

7808-8808. Psychoeducational Assessment III. (3). Introduction to psychoeducational assessment of preschool children; includes issues surrounding early assessment, skill development with preschool instruments, and related report writing, conferencing. **PREREQUISITE:** Permission of instructor.

7809-8809. Advanced School Psychology Practicum. (3). Applied experience utilizing both direct and indirect school psychological services and supervision; students will assume the role of case manager providing comprehensive services for multiple clients; students will also be expected to supervise students in the beginning intervention practicum. **PREREQUISITE:** Permission of instructor.

†7812-8812. Internship: School Psychology. (3-6). Supervised field placement in school and/or community agency settings; requires a minimum of 1200 hours for the EdS and 1500 for the PhD, at least half of which must be in a school setting. May be repeated for a maximum of 6 hours applied toward either degree. **PREREQUISITE:** Admission to the school psychology program, permission of program coordinator, grades of S in all previous practica.

†7996. Thesis. (1 or 3). Independent research for master's degree. Application for writing a thesis must be filled out on an approved form after consultation with major professor and filed with the Dean of the Graduate School. Only 3 hours may be counted toward degree requirements.

†8620. Major Area Paper. (3 or 6). Independent investigation of an approved topic of the student's specialization, leading to the preparation of a publishable paper following the format of the Psychological Bulletin or the Psychological Review. Only 6 hours may be counted toward degree requirements.

†9000. Dissertation. (1, 3, 6, or 9). Independent research for Doctor of Philosophy degree. Application for writing a dissertation must be filled out on an approved form after consultation with the major professor and filed with the Dean of the Graduate School. Only 9 hours may be counted toward degree requirements.

†Grades of S, U, or IP will be given

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PhD (1998), The Pennsylvania State University [2004]
JEROME L. BLAKEMORE, *Associate Professor of Social Work*
PhD (1992), University of Illinois-Chicago [2004]
STANLEY E. HYLAND, *Associate Professor of Anthropology*
PhD (1977), University of Illinois-Urbana [2004]
DOULAS R. IMIG, *Associate Professor of Political Science*
PhD (1991), Duke University [2004]
WILLIAM D. MADLOCK, *Instructor of Political Science*
MA (1977), Memphis State University [2004]

I. The Master of Public Administration degree program educates students for careers in public service and for employment with government, private, nonprofit, and publicly-oriented organizations. The program combines interdisciplinary academic preparation with governmental and nonprofit field experience. The program is accredited by the National Association of Schools of Public Affairs and Administration.

II. Master of Public Administration (MPA) Degree Program

A. Program Admission

Applicants must satisfy admission requirements of the Graduate School and receive favorable endorsement from the public administration faculty. Admission will be based on applicable test scores (Graduate Record Examination [GRE] or Graduate Management Aptitude Test [GMAT]); undergraduate grade point average; previous education and/or experience demonstrated via a résumé and two letters of reference; and ability to articulate career goals and education objectives via a personal statement. Applicants with three or more years of management/administrative/analytical experience at the professional level may request permission to substitute a core PADM course, earning a B or better, for the entrance exam requirement.

B. Program Prerequisites

Students are accepted from all undergraduate disciplines and professional areas; however, the program determines if students must complete up to six hours of prerequisites before being fully admitted into the program, specifically PADM 6101, Statistics, and/or PADM 3601, Introduction to Public Administration.

C. Program Requirements

Students are required to complete a minimum of (forty-two) 42 semester hours. Thirty (30) hours are taken in the core curriculum and twelve (12) hours are required in each concentration. An individual course plan is designed for each student and approved by the Coordinator of Graduate Studies. The concentrations allow students to extend the basic knowledge gained in the core curriculum to more focused public service fields, including nonprofit administration, human resources administration, urban management and planning, and health services administration. The general public administration concentration allows students to focus on governmental or nonprofit management and administration or on a specific public policy area.

Students must complete a minimum of 21 semester hours prior to enrollment in PADM 7610. Candidates for the MPA degree who have administrative experience in the governmental or nonprofit sectors may request a waiver of the internship field experience requirement (PADM 7610) and request substituting one 3-hour course or the practicum (PADM 7611).

The comprehensive examination must be successfully completed during the calendar year in which the student expects to graduate.

D. Non-Degree Seeking Students

If a student has taken graduate courses at The University of Memphis as a non-degree-seeking student, the student may apply a maximum of 9 credit hours toward his/her degree requirements. The grade in each course applied must be at least a "3.00." The Coordinator of Graduate Studies must approve all course work taken as a non-degree-seeking student.

PUBLIC ADMINISTRATION (PADM)**PREREQUISITES**

3601. Introduction to Public Administration. (3). (Same as POLS 3601). Concepts and practices of organization and management in executive departments, national, state, and local; analysis of bureaucracy, administrative theory, budgeting, personnel, and administrative leadership.

6101. Political Statistics. (3). (Same as POLS 6101). Introduction to analysis of quantitative data used to test, statistically, hypotheses in fields of political science and public and health administration.

CORE CURRICULUM

7213-8213. Seminar in Public Policy Analysis. (3). (POLS 7213-8213). Empirical and normative analysis of public policy at the local, state, national, and international levels, emphasizing the theories, literature, and methodologies current to this field. PREREQUISITE: POLS 6101 or equivalent or permission of instructor.

7600-8600. Seminar in Administrative Theory. (3). (POLS 7600-8600). Significance of public administration in American government; includes an introduction to formal organization theory and bureaucracy, decision-making theory, leadership and motivational theory, and current trends and problems in the study of public administration.

7601-8601. Research Methods in Public Administration. (3). (POLS 7601-8601). Issues and techniques in data collection for design and implementation of independent research projects; logic of conducting research in public administration, measurement, and sampling; introduction to program evaluation and specific quantitative decision-making techniques. PREREQUISITE: POLS 6101 or permission of the instructor.

7602-8602. Public Budgeting and Finance Administration. (3). (POLS 7602-8602). Detailed study of administrative and political problems of fiscal policy, the budgetary process, and fiscal controls.

7605-8605. Human Resources Administration. (3). (POLS 7605-8605). Policies, methods, and techniques utilized in public and health organizations; special attention is given to problems reflecting contemporary demands upon human resource systems, capacity to diagnose problems, select the most effective means of addressing them, and plan appropriate courses of action developed through case studies.

7607-8607. Public Management Leadership. (3). (POLS 7607-8607). Theoretical and applied aspects of public and nonprofit leadership addressed in a holistic approach; focus on the most current literature

and public debate; leadership examined from various perspectives reflected across the curriculum: administrative theory, public law, finance, ethics, research methods, and public policy.

†7610. Internship in Public Administration. (3-6). (POLS 7610). Participation in some type of field experience, including a written report critically describing the student's responsibilities. Field experience may result from a supervised internship in cooperating public or nonprofit organizations or from appropriate administrative experience if the student is employed in a public or nonprofit organization. PREREQUISITE: Permission of the Coordinator of Graduate Studies.

7611. Practicum. (3-6). (POLS 7611). Application of knowledge, concepts, analytical tools to contemporary issues challenging modern managers; individuals pursue special projects in local public and nonprofit organizations, conducting research under the guidance of a faculty committee, or work with the Institute of Governmental Studies and Research on current problems in public administration. May be repeated for a total of 6 credits. PREREQUISITE: Permission of the Coordinator of Graduate Studies.

7614-8614. Interagency Collaboration and Administration. (3). Theoretical and applied aspects of public sector administrative innovation focusing on changing intergovernmental relationships and the growing number and types of partnerships between the public and nonprofit sectors; topics include designing innovative public service programs/structures, potentials for conflict, ethical dilemmas, performance monitoring, and accountability requirements. PREREQUISITE: PADM 7600.

ELECTIVES

6207. Health Politics and Policy. (3). Introduction to political, economic, and social forces affecting the health care system in the United States; emphasizes development and comparison of health policies within the context of American politics; analysis of health policies within the context of the stages of American public policy-making.

6208. Mental Health Policy and Law. (3). Mental Health systems, including voluntary and involuntary hospitalization, incompetency and guardianship, and mental health issues in criminal process; legal and policy concerns for mental health professionals, including regulation, malpractice, informed consent, and record confidentiality.

6209. Aging Policy and Law. (3). Social control and social justice considerations in such policy areas as protective services, Social Security, Medicare and Medicaid, long-term care, age discrimination, and death with dignity.

6221. Urban Administration. (3). (Same as POLS 6221). Examination of politics, administration, and public policy in an urban context; focus on the administrative aspects of selected governmental policy-making processes; interrelationships of governments at various levels, urban challenges facing modern public administration.

6222. Urban Politics. (3). (Same as POLS 6222). Roles and processes of politics and governance in urban America in context of global, social, and economic influences on cities and suburbs.

6224. Urban Problems. (3). (Same as POLS 6224). A study of selected problems in urban administration, politics, and policies.

6710-19. Special Topics in Public Administration. (1-3). In-depth study of selected topics and issues related to public and nonprofit administration. May be repeated for a maximum of 6 hours.

7224-8224. Seminar in Urban Problems. (3). (POLS 7224-8224). Problems inherent in the growing urban developments in the United States; the governmental organization of metropolitan areas and the difficulties of coordination of government functions; proposed remedies and the reception of new approaches in selected metropolitan areas.

†7503. Reading for Comprehensives. (3). Arranged on an individual basis for graduate students in public administration only. PREREQUISITE: Completion of degree requirements or in last two semesters of program.

7603-8603. Public Sector Collective Bargaining. (3). (POLS 7603-8603). Employee organizations and the development of collective relations in the public and hospital sectors; topics include unions and management wage policies, collective negotiation and bargaining, and the evaluation of the impact of unionization on public policy and union relations in the nonprofit sector.

7604. Social Science and the Law. (3). (Same as POLS 7604). Applications of social science to such public policy questions as discrimination, obscenity, parole, trademarks, death penalty, child custody, and criminal offender profiles.

7606-8606. Seminar in Administrative Law. (3). (POLS 7606-8606). Role and nature of administrative law, including procedural requirements and judicial review of administrative actions and liability of government for torts and breach of contract.

7608-8608. Public Management Information Systems. (3). (POLS 7608-8608). Analysis and application of responsibilities of public organization managers; focus on technological strategies and skills for meeting those responsibilities including budget processes, information systems and dissemination, decision-making, citizen participation, and program development and evaluation.

7609-8609. Seminar in Administrative Ethics. (3). (POLS 7609-8609). Introduction to ethical theories and principles as they apply to the practice of public administration, basic legal constraints such as conflict of interest laws, and more subtle ethical dilemmas that arise in the exercise of discretion.

7612-8612. Program and Policy Evaluation. (3). (POLS 7612-8612; 6605). Models, theories, and techniques of program and policy evaluation in public administration; evaluation research design, data collection and analysis, dissemination of results, and possible applications of evaluations to policy-making and administration; organizational and political contexts of evaluation.

†7613. Proseminar in Professional Development. (3). (POLS 7613). Introduction to public and health administration professions with emphasis on career development; employment opportunities, computer resources, professional associations, submission and publication of articles; faculty and student presentations.

7634-8634. Developing Public Human Resources. (3). (POLS 7634-8634). Organizational, group, and individual development processes and philosophy for public, nonprofit, and health care agencies; special emphasis on application of knowledge and skills.

7635-8635. Issues in Public Human Resources. (3). (POLS 7635-8635). Special issues of current interest that relate to management, planning, and development of human resources in nonprofit and public agencies.

7641-8641. Theory and Practice of Nonprofit Administration. (3). (POLS 7641-8641). Introduction to theoretical foundations, structures, and processes of nonprofit organizations; historical development and impact, social, political, legal, and economic environment in which nonprofit organizations exist; complexities of organizational governance shared by volunteer and professional staff decision-makers.

7642-8642. Resource Development in Nonprofit Organizations. (3). (POLS 7642-8642). Introduction to various resources important to nonprofit organizations including financial support, volunteers, and community awareness, and to wide range of organization activities utilized for acquisition and maintenance of these resources.

7651. Comparative Public Administration. (3). Comparative examination of differing concepts and perspectives of public administration, addressing variability in administrative systems, political power and control over public bureaucracies, education and recruitment of public bureaucrats, and the bureaucratic concept of public interest and responsiveness to the public.

7702-8702. Independent Study. (1-3). Independent investigation of research problems or directed readings in selected areas of public administration. May be repeated for a maximum of 6 credit hours. **PREREQUISITE:** Permission of instructor.

7710-19-8710-19. Special Topics in Public Administration. (1-3). Intensive study of selected topics in public administration. May be repeated for a maximum of 6 hours.

†7996. Thesis. (1-6). The student must write and defend satisfactorily a thesis on a subject approved by the major professor and the committee.

† Grades of S, U, or IP will be given

SOCIOLOGY

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AFFILIATE MEMBERS

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PhD (1998), University of Iowa [2003]
MARTHA SCHMIDT
PhD (1993), The Ohio State University [2003]

I. The Department of Sociology offers the Master of Arts degree in Sociology.

II. MA Degree Program

Graduate students who select sociology as a major should consult with the graduate coordinator.

A. Program Admission

To be considered for admission, the Department of Sociology recommends that applicants have a Verbal score of 450 and a Quantitative score of 450 on the GRE or a score of 40 or higher on the MAT. Admission, however, is not automatic upon meeting the recommended scores. Other factors such as, but not limited to, letters of reference, the writing sample, GPA for the last 60 hours of the undergraduate degree, and the availability of stipends, will be taken into account. Applicants with low test scores may be considered if other supporting evidence is outstanding. In addition, applicants must have satisfactorily completed courses in research methods, sociological theory, and statistics, or demonstrate equivalency.

B. Program Requirements

1. Students may choose one of two degree programs: (A) The thesis program requires thirty (30) semester hours of graduate level work, which includes 3-6 hours of Sociology 7996 (Thesis). The oral defense of the thesis counts as a comprehensive examination. (B) The non-thesis program requires thirty-three (33) semester hours of graduate level work and the passing of both written and oral comprehensive examinations. The student must remove all grades of incomplete from his or her record *before* taking the comprehensive examination. The successful completion of the following courses is required of all majors:

SOCI 6312, SOCI 7210, SOCI 7320. A minimum grade of "3.0" is required in each.

2. For option (A), at least 24 semester hours of course work must be in sociology. For option (B), at least 27 semester hours must be in sociology. For options (A) and (B), no more than 6 semester hours of SOCI 7912, Directed Individual Study, may be counted toward the degree without permission from the graduate coordinator.
3. It is the responsibility of each student to become familiar with the graduate catalog and the requirements therein.

SOCIOLOGY (SOCI)

6211. Contemporary Sociological Theories. (3). Major frameworks of 20th century sociological thought, including theoretical schools of functionalism, exchange theory, critical theory, symbolic interactionism, phenomenological sociology, and ethnomethodology; current social and political trends and issues.

6312. Intermediate Social Statistics. (3). Multivariate analysis of social data; use of computer programs for data management and statistical analysis. PREREQUISITES: SOCI 3311 and 3322, or their equivalent, or permission of the instructor.

6842. Sociology of Occupations and Professions. (3). Sociological analysis of the division of labor, occupational groupings, career patterns, and professional associations in modern American society.

6900-09. Special Topics in Sociology. (3). Topics are varied and announced in *Schedule of Classes*.

7210-8210. Theory Seminar. (3). An advanced analysis of recent developments in sociological theory, including the relationship of theory to empirical research.

7212-8212. Multi-Racial Feminist Theory. (3). Intensive analysis of major figures and issues in contemporary multi-racial feminist theory, emphasis on theory that grapples with conceptual and methodological requirements for multi-racial feminist politics of diversity that draws on both United States and international scholarship.

7320-8320. Seminar in Methods of Social Research. (3). Issues and techniques in data collection for the design and implementation of independent research projects; logic of conducting social scientific research ethical considerations, logic of sampling, various methods of collecting data for social research (e.g. experimental design, participant observation, survey research/questionnaire construction, and content analysis), and writing research proposal.

7322-8322. Seminar in Quantitative Data Analysis. (3). Preparation, analysis, and interpretation of existing quantitative data; data processing, multivariate analysis, interpretation, and writing results for research projects. PREREQUISITE: SOCI 6312, equivalent, or permission of instructor.

7325-8325. Seminar in Qualitative Research Methods. (3). Examination of qualitative social science research methods, particularly rationale behind these methods, how and when they are employed, and processes of analyzing field observations, oral histories, and in-depth interviews.

7330. Seminar in Current Research Literature. (3). A seminar dealing with current topics of interest in the field. Topics will vary in response to the interests of the students and specialties of the staff. (May be taken twice for 3 hours credit each time when topic varies.)

7410-8410. Sociology of Women. (3). Social definitions of gender and impact of these definitions on women's lives; women's responses to these conditions.

7411-8411. Social Stratification. (3). Theoretical analysis of how social class status and power shape social relations, determine life chances, and affect attitudes, opinions, and political choices of individuals and groups; processes that perpetuate systems of class, gender, and race inequality, and degree of social mobility in societies.

7421-8421. Racial and Social Inequality. (3). (7810). Comparative study of racial, ethnic, and social minorities in the United States; historical and contemporary experiences of groups such as African Americans, Latinos, Asian Americans, Native Americans, homosexuals, and political minorities, as well as current theories in

American sociology used to interpret their experiences; how gender and class influence experience of oppression.

7422-8422. Race, Class, and Gender. (3). Concepts, theories, and contemporary empirical research regarding multiple intersections of race, class, and gender; implications for sociological theory and methodology.

7442-8442. Sociology of Poverty. (3). Patterns of wealth and income inequality in contemporary society; consequences of poverty for society and individuals in various institutional contexts; critical evaluation of traditional theories of poverty and contemporary alternatives.

7450. Seminar in Aging. (3). Aging as sociological phenomenon through understanding and applying principles of gerontological analysis to contemporary topics in aging, including acquaintance with and use of computer accessible literature data base.

7511-8511. Theories of Deviance. (3). A seminar in the sociological approaches to the study of deviance and social disorganization with an emphasis on current sociological theory and research.

7512-8512. Deviance and Diversity. (3). Deviance and diversity from a sociological perspective; pornography, prostitution, gay and lesbian issues, various forms of sexual deviance, and other relevant and current topics.

7513-8513. Sociology of Gambling. (3). Sociological examination of role of gambling in contemporary society with special emphasis on social, economic, and political aspects of gambling behavior; agnostic vs. fatalistic gambling, gambling as social structure, gambling as superstition, gaming industry, illegal and sports gambling, legitimization of gambling, and problem gambling.

7528-8528. School, Family, and Delinquent Children. (3). Delinquency in context of children's relationships with family and school; theory of social bonding; changing social roles of children (through the life cycle and historically); family and delinquency; schools, truancy, and delinquency; endangered children; female delinquency; and treatment/prevention/control of delinquency.

7631. Urban Theory Seminar. (3). Competing theories and accompanying research findings on current issues in macro and micro urban theory; rise and fall of cities; effects of urbanism and urban form on individual and group behavior; how urban social groups (e.g., social classes, race/ethnic groups) manage their lives and their relations with others, and how these groups mobilize in efforts to change or resist change.

7655-8655. Sociological Foundations of Community Studies. (3). Ecological, interaction, and social system perspectives for community analysis; contemporary applications of theories within context of American society; implications of current changes for community life and social stratification, leadership and power structure, social differentiation and integration, community development, and ideology.

7711-8711. Seminar in Globalization and Social Change. (3). Sociological and historical perspectives on social, political, and economic differences among countries and regions of the world; global/transnational processes in uneven development; state formation; class transformation; democracy.

7721-8721. Seminar in Social Movements. (3). Origins, organization, and consequences of intentional, collective efforts at social change; social movement theory; in-depth examination of selected movements, both domestic and international.

7751-8751. Seminar in Sociological Social Psychology. (3). Advanced course in social psychology, incorporating basics and emphasizing sociological approaches; symbolic interaction, non-laboratory methods, attitude measurement, socialization, self-concept, gender, attraction, personal relationships, small groups, power, and situationalism.

7811. Formal Organizations. (3). (7460). Competing theories of formal organizations and accompanying research findings on current issues of bureaucratization and centralization of modern social systems;

close examination of power and functions of various large scale organizations, including economic, political, and educational institutions.

7820. Seminar in Sociology of Education. (3). Schools and school life from sociological perspective; how societal objectives are translated into school policies and practices.

7830-8830. Seminar in the Family. (3). (7420). An advanced course that is primarily concerned with research findings in the area of family disorganization, changes in family structure and function, parent-child interaction, working mothers, and problems of aging.

7832-8832. Work and Family. (3). Current research on work and family and broader sociological relationship between social structure and personal life; link between home and market work, impact of employment, underemployment, and poverty on family life, and contemporary policy implications.

7851-8851. Medical Sociology. (3). Social meaning of disease, with special emphasis on the cultural, organizational, and behavioral contexts of the occurrence and management of disease.

7852-8852. Sociology of Mental Illness. (3). Social meaning of mental illness, with special emphasis on the cultural, organizational, and behavioral contexts of the occurrence and management of mental illness.

7853. Women and Health. (3). Focus on American health care system and social/political economic factors affecting health of women of different racial/ethnic and economic groups.

7860-8860. Seminar in the Sociology of Religion. (3). A sociological examination of religious institutions; cultural and social factors associated with religious structure, religious values, and religious

behavior; secularization of culture and change of social structure, analysis of religious organizations; religious leadership and religious movements.

7901-7909-8901-8909. Special Topics in Sociology. (1-3).

7912-8912. Directed Individual Study. (1-4). Individually directed advanced reading and/or research in special areas of interest. NOTE: Course may be repeated for a maximum of 6 hours credit. PREREQUISITE: Permission of Coordinator of Graduate Studies.

†7913. Teaching Skills for Graduate Assistants. (1-3). Overview and practical demonstrations of art of teaching sociology. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Limited to sociology majors; permission of graduate coordinator.

†7914. Workshop in Professional Development for Graduate Assistants. (1-3). Presentations of research methods and scholarly output by faculty, graduate students, and visiting scholars. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Limited to sociology majors; permission of graduate coordinator.

†7915. Skills for Research and Proposal Preparation. (1-3). Research design, practice, and methodology in professional writing in sociology; specific emphasis on thesis/dissertation proposal preparation. May be repeated for a maximum of 12 credit hours. PREREQUISITE: Limited to sociology majors; permission of graduate coordinator.

†7996. Thesis. (1-6). Supervised research in preparation for advanced degree thesis. PREREQUISITE: The formal filing of a research proposal and outline of procedures acceptable to the student's graduate committee.

†Grades of S, U, or IP will be given



The Fogelman College of Business and Economics

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Dean

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Faculty Director of PhD Programs

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GRADUATE ACADEMIC PROGRAMS

Academic Area	Major	Concentration Within Major	Degree Offered
Accountancy	Accounting	(1) Accounting (2) Accounting Systems (3) Taxation	Master of Science (MS)
Economics	Economics		Master of Arts (MA)
Fogelman College of Business and Economics (Interdepartmental)	Business Administration	(1) Finance, Insurance, and Real Estate (2) Management (3) Management Information Systems (4) Marketing (5) Real Estate Development	Master of Science (MS)
		(1) Accounting (2) Economics (3) Finance, Insurance, and Real Estate (4) Management (5) Management Information Systems (6) Management Science and Operations Management (7) Marketing (8) International Business (9) Executive (10) Law	Master of Business Administration (MBA)
		(1) Accounting (2) Economics (3) Finance (4) Management (5) Management Information Systems & Decision Sciences (6) Marketing	Doctor of Philosophy (PhD)*
Fogelman College of Business & Economics and College of Arts & Sciences (Interdisciplinary)	Electronic Commerce		Master of Science (MS)

*Some concentrations may not admit students to the doctoral program every year. Interested applicants should contact area PhD coordinators before applying to the program.

Individual program requirements described in *The University of Memphis Graduate Bulletin, 2001-2003*, are subject to change. Please consult the college office for changes that may occur before publication of the next issue of this *Bulletin* or consult the Graduate School website at www.memphis.edu/gradschool for annual catalog updates.

The Fogelman College of Business and Economics is one of the fastest growing centers of business study in the South. The University offers the business student advanced learning and a wealth of potential material for research and study. The University of Memphis maintains extensive facilities for business research, including the Bureau of Business and Economic Research, the Center for Manpower Studies, and the Public Sector Employee-Employer Relations Center, which aid Memphis area businesses and governmental agencies in many ways through the collection, analysis, and interpretation of business data.

MASTER OF BUSINESS ADMINISTRATION, MASTER OF ARTS, AND MASTER OF SCIENCE DEGREES

The Master of Business Administration degree is especially designed for students who have a bachelor's degree from arts and sciences, engineering, law or other areas of study, as well as those who hold a bachelor's degree in Business Administration. A foundation is provided for continued growth in any business endeavor or activity. Students in the MBA program may emphasize one of the following areas of study: accounting; economics; finance, insurance, and real estate; management; management information systems; management science and operations management; or marketing. Essential business and economics knowledge is conveyed by the coursework

outlined below as Alternate Core I and Core II requirements for the MBA. The basic content of this coursework is also provided in the Executive MBA concentration but delivered in a different format and setting designed for and limited to corporate executives. The International MBA concentration provides similar business and economic content, also delivered in a format and setting suitable for the IMBA student, and augments this with additional foreign language and area studies curricula. A joint MBA/JD concentration is also available. These are described in more detail below.

Students with adequate preparation in business administration and economics may complete the standard MBA program in a minimum of three semesters (one calendar year). Five semesters are normally required of students who have no undergraduate work in business. The graduate programs of the Fogelman College of Business and Economics are fully accredited by the American Assembly of Collegiate Schools of Business.

The Master of Arts and Master of Science degrees are available to students desiring a higher degree of specialization than is possible under the MBA program. Students may obtain the MS degree in Accountancy with concentrations in taxation, accounting systems, or accounting, and in Business Administration with a concentration in finance, insurance, and real estate; management; management information systems; real estate development; or marketing. Jointly with the College of Arts and Sciences, the Fogelman College also offers an interdisciplinary MS degree in Electronic Commerce. The Master of Arts degree is available with a major in Economics.

Master's Program Admission

Admission to the Master of Business Administration, Master of Arts (Economics), and Master of Science degree programs is granted to graduates of accredited colleges and universities who show high promise of success in graduate business study. Qualified candidates may enter the program at the beginning of any semester. The admission requirements include the following, all of which must be completed before admission and enrollment:

1. An undergraduate degree from an accredited college or institution.
2. An application for admission and the appropriate fee.
3. An official transcript from each college or university attended.
4. Satisfactory performance on undergraduate course work and a recent (five years or less) GMAT admissions examination score. In 2000, the average GMAT score for applicants admitted to Master's programs was approximately 530.

Admission to the MBA and MS programs in The Fogelman College of Business and Economics is based on a thorough review of the applicant's academic and business credentials. Primary emphasis is placed on academic preparation. Admission to the MS in Electronic Commerce is competitive and requirements are discussed in the appropriate section later in this bulletin.

Arrangements for taking the GMAT can be made by writing to GMAT, Educational Testing Service, Princeton, New Jersey 08540, or by calling 1-800-462-8669. Packets are also available in the Graduate School Office at The University of Memphis, and in the Graduate Programs Office, room 101, Fogelman College of Business and Economics, The University of Memphis.

The Graduate Non-Degree classification allows individuals who have not yet decided to pursue a graduate degree to

enroll in ALTERNATE CORE I graduate courses. In addition, Graduate Non-Degree students with professional development needs may enroll in other graduate courses (**a maximum of 9 credit hours**) with the permission of the Faculty Director of Master's Programs. To remain enrolled as a Graduate Non-Degree student, individuals must maintain a minimum GPA of 3.0. **Students should note that the 9-hour maximum is more stringent than the University Graduate School policy.**

Program Prerequisites (MBA and MS)*

If the prospective student does not have an undergraduate degree in business, but meets the entrance requirements above, the student will complete the prerequisite courses with 24 credits (C or better in each course) of the ALTERNATE CORE I, or their equivalent. Prospective MBA students with undergraduate degrees in business are required to take only the Alternate Core I courses for which their background is deficient.

ALTERNATE CORE I / PREREQUISITES

- Financial Accounting (ACCT 7000)—3 hours
- Economic Theory (ECON 7010)—3 hours
- Statistical Methods in Business and Economics (ISDS 7020)—3 hours
- Management and Organization (MGMT 7030)—3 hours
- Financial and Legal Concepts of Business (FIR 7050)—3 hours
- Marketing Management (MKTG 7060)—3 hours
- Production and Operations Management (ISDS 7080)—3 hours
- Quantitative Economic Analysis (ECON 4810/6810) or calculus equivalent—3 hours

TOTAL 24

Alternate Core I / Prerequisite classes may not be used toward a graduate degree in the Fogelman College of Business and Economics.

NOTE:

*Except the MS in Electronic Commerce; see separate requirements below for that program.

MBA Program Requirements

Each candidate for an MBA degree must complete a minimum of 33 semester hours of course work beyond Alternate Core I prerequisites and pass an oral comprehensive examination. Students are expected to finish the first five required courses before beginning the area of concentration. Part-time MBA students should take at least two courses (a 6-hour load) each semester of enrollment. The 33 graduate credits comprising the MBA program (except Executive and International, see following sections) are distributed as follows:

CORE II CREDITS

- Required Courses
- Business Applications of Economic Theory (ECON 7100)—3 hours
- Managerial Accounting for Decision Making (ACCT 7110)*—3 hours
- Quantitative Methods for Business Decisions (ISDS 7120)—3 hours
- Seminar in Organizations (MGMT 7130)—3 hours
- Strategic Marketing (MKTG 7140)—3 hours
- Financial Management II (FIR 7150)—3 hours
- Seminar in Business Policy (MGMT 7160)**—3 hours
- And one 3-credit-hour course in international business selected from ACCT 7170***, ECON 7170, FIR 7170, ISDS 7170, MKTG 7170, MGMT 7170, ISDS 7650, or an international business course approved by the Faculty Director of Master's Programs.

CORE II TOTAL 24

*Electives or Concentration Requirements—9***TOTAL 33**

At least 27 of the 33 graduate credit hours required must be in courses designated for graduate students only (7000 level or above).

NOTES:

*Candidates who have completed ACCT 3310, Cost Accounting, or the equivalent must substitute ACCT 7320, Management Control Systems, or ACCT 7330, Cost Management Systems.

**To enroll in MGMT 7160, a student must have satisfactorily completed a minimum of 15 semester hours of Core II courses. Full-time students may be enrolled in MGMT 7160 and their fifth Core II course concurrently.

***MBA Students with a concentration in Accounting must take ACCT 7170.

Students pursuing a concentration in accounting or information systems must take additional prerequisite coursework before beginning CORE II. See area requirements.

Area Concentrations

Each area in the Fogelman College offers a concentration within the Business Administration major. The MBA may be earned with a concentration in accounting; economics; finance, insurance, and real estate; management; management science and operations management; management information systems; and marketing. The Area Master's Coordinator will assist students with the specific courses required for a concentration in that area.

International MBA Concentration

The International Business concentration is a fixed track, two-year program designed for the full-time student interested in a career in international business. The curriculum offers: specific business courses with an international orientation, required graduate language and area studies course work, and an international business practicum or internship.

Applicants must have an undergraduate degree from an accredited college or university, with satisfactory performance on undergraduate course work and an acceptable GMAT score. In the foreign language area, applicants should be fluent in one of the program's foreign languages at the equivalent of junior level of college instruction. Applicants must have basic computer literacy and quantitative skills in calculus and statistics before entering the first semester curriculum. The University of Memphis offers courses in these areas that may be taken before enrollment.

To be considered for admission, applicants must provide: (1) an application for admission and the application fee, (2) an official transcript from each college or university attended, and (3) recent GMAT scores (five years or less).

The concentration schedule is as follows:

YEAR ONE CREDITS**Fall—15 hours**

Global Accounting Policies
Essentials of Economics for International Business
Organizational Behavior and the International Context
Global Financial Management
Advanced Business Foreign Language

Spring—12-15 hours

Global Marketing
International Competitiveness
Managing Global Production Operations
Global Information Systems
Optional Elective in International Business
Advanced Business Foreign Language II*

Summer—11 hours

Seminar in Regional Geography
Seminar in Regional Politics
Market Research Methodology
Advanced Business Foreign Language III*

YEAR TWO**Fall—9 hours**

Practicum in International Business

Spring—9-15 hours

Seminar in International Business Policy
Directed Electives in International Business
Optional Electives in International Business

TOTAL 56-65

*Descriptions of French, German, and Spanish courses may be found in the Department of Foreign Languages and Literatures section of this Bulletin. Foreign national students have the option to choose English for their language and area studies coursework (for descriptions, see the Department of English section of this Bulletin).

Executive MBA Concentration

The Executive MBA concentration is for professional and management personnel who wish to broaden and enrich their business skills. The program consists of 45 credit-hours in a fixed-track format and is completed in two academic years. All participants take the same course of study and progress together through the program.

Applications are welcomed from professionals and managers who hold a bachelor's degree and who have five or more years experience in a professional or managerial position. Admission criteria include a review of (1) recent GMAT scores (five years or less), (2) undergraduate academic performance, and (3) quality of business experience.

The schedule of course work is listed below. Executive MBA concentration classes are designed for the modular structure of the program. All participants must attend a one-week residential seminar in August of both years. During the academic year, classes meet each weekend on alternate Fridays and Saturdays.

The 45 credit-hour program includes courses such as
Management and Organization
Marketing Management
Financial Accounting
Business Applications of Economic Theory
Statistical Methods
Financial Management
Global Business
International Business Seminar
Seminar in Organizations
Quantitative Methods
Managerial Economics
Business Policy
Managerial Accounting

In addition, the program offers a number of 1.5 credit modules such as

Advanced Financial Management
Advanced Marketing Management
Management Information Systems
Business Ethics
Business Legal Environment

Law Concentration

The MBA with a Law concentration allows the student to concurrently earn an MBA and a JD. The student must be admitted to both the Fogelman College MBA program and the JD program in the Cecil C. Humphreys School of Law. The Law concentration is composed of three law courses offered through

the School of Law and approved by the faculty director of master's programs in the Fogelman College.

MBA Without a Concentration

Students who do not choose a concentration will select nine hours of electives with the prior approval of the Faculty Director of Master's Programs in the Fogelman College.

MS in Business Administration

MSBA students must have completed a quantitative course at the level of ECON 4810-6810. Each concentration area may have additional prerequisites, which are identified in the area descriptions. Depending upon the student's undergraduate background, additional prerequisites for some college core courses may be required.

Students who wish to pursue the Master of Science with a major in Business Administration and a concentration in Real Estate Development; Finance, Insurance, and Real Estate; Management; Management Information Systems; or Marketing must complete the following three core courses:

Research Methodology (MKTG 7213)—3 hours
Information Systems in Organizations (ISDS 7465)—3 hours
One three-hour course in international business selected from ACCT 7170, ECON 7170, FIR 7170, ISDS 7170, MKTG 7170, or MGMT 7170, ISDS 7650, or an international business course approved by the Faculty Director of Master's Programs.

TOTAL—9

For specific program requirements beyond the MS core, see the appropriate area listing.

MS in Electronic Commerce

The MS in Electronic Commerce degree is an interdisciplinary degree jointly offered with the College of Arts and Sciences. Admission into this program is competitive. Candidates must submit scores from either the GMAT or the GRE exams, and two letters of recommendation. A minimum undergraduate GPA of 2.5 on a 4.0 scale is required for consideration. International students whose native language is not English must attain a minimum score of 550 (210 computer-based) on the TOEFL exam.

Each candidate for the MS in Electronic Commerce degree must complete 33 semester hours of course work, including 27 hours of required courses and 6 hours of electives. In addition, five prerequisite courses must be completed either before admission or during the first two semesters of the program. While the program can be pursued on either a full-time or part-time basis, the program of study arranged for full-time study is as follows.

Prerequisite Courses

Elementary Calculus (MATH1312 or equivalent)
Discrete Mathematics (MATH2701 or equivalent)
Management and Organization (MGMT7030 or MGMT3110, or equivalent)
Marketing Management (MKTG7060 or MKTG3010, or equivalent)
Knowledge of a higher level programming language (C or an object-oriented language desirable)

Semester I

Introduction to Electronic Commerce (BA/COMP7100)
Business Database Systems (ISDS7605) or Database Systems (COMP7115)
Introduction to Telecommunications (ISDS7615) or Data Communications (COMP6310)

Semester II

Contemporary Electronic Commerce (BA7105/COMP7105)
Two of the following three courses:
Data Mining (COMP7118)
Data Security (ISDS7670/COMP7120)
Topics in Human-Computer Interaction (COMP7517)
Technical Elective

Semester III

Advanced Electronic Commerce (BA7110/COMP7110)
Electronic Commerce Project (BA7970/COMP7970)
Seminar in Organizations (MGMT7130)
Technical Elective

MS in Accounting

Students who wish to pursue the Master of Science in Accounting must have successfully completed or complete the proper background courses. For program admissions, prerequisites, and degree requirements see the area listing.

MA in Economics

The Area of Economics offers a graduate program leading to the Master of Arts degree. For program admissions, prerequisites, and degree requirements see the area listing in this section.

PHD IN BUSINESS ADMINISTRATION

The mission of the PhD in Business Administration program is to prepare individuals primarily for careers in teaching and research in institutions of higher education and secondarily for careers as consultants, researchers, and professional managers in other organizations.

Students with master's or professional degrees in business administration, public administration, economics, law, engineering, mathematics, computer science, psychology, sociology, and the physical sciences will find this background provides important preparation for entering the PhD program.

The University has the academic resources to provide the doctoral applicant with a balanced education that provides both the qualitative and quantitative skills required of the modern business education professional.

The PhD student at the Fogelman College can select a concentration from one of six areas of business administration: accounting, economics, finance, management, management information systems and decision sciences, and marketing.

The minor may also be selected from these fields or from fields as diverse as Psychology and Mathematics.

Program Admission

Individuals meeting the general requirements for admission to the Graduate School for doctoral-level programs shall be eligible to apply for admission to the PhD program.

Admission to the PhD program may be granted to qualifying applicants who show high promise of success in doctoral business study. The principal criterion for admission is evidence of superior achievement in prior academic work, coupled with outstanding promise for future contributions as a business scholar. The admissions committee of the concentration area and the faculty director of PhD programs will review and evaluate each applicant. **Some concentration areas may not admit students to the doctoral program every year. Interested applicants should contact area PhD coordinators before applying to the program.**

Criteria used for evaluation include the applicant's:

1. Academic record: Applicant's graduate grade point average on the master's level coursework should be 3.4 or higher (on a 4.0 basis).
2. Testing: Applicants must present an acceptable score on a recent (five years or less) Graduate Management Admission Test. In 2000, the average GMAT score for applicants admitted to doctoral programs was approximately 605. The Economics concentration also accepts the Graduate Record Examination (GRE).
3. Recommendations: Three letters of recommendation are required from former professors, colleagues, and/or business executives.
4. Personal Statement and Resume: Applicants must submit a written statement of career plans and objectives, and a current resume of academic and professional experiences.
5. Mathematics: Applicants must submit a transcript indicating the successful completion of a course in calculus.
6. Interview: Applicants may appear before the area admission committee for a personal interview.

Following admission, a student will be assigned to an area program committee composed of faculty members from the student's area of concentration. The program committee is responsible for planning and approving the program requirements, and for guiding and monitoring the progress of the student through the program.

Prerequisites

Students are usually admitted after completing a master's degree in business or economics. Prerequisites in the functional areas of business are determined by the area program committee of the student's area of concentration. A student who enters the PhD program without a master's degree will initially be admitted at a master's level.

Program Content

Research Core: (at least 12 semester hours) includes courses designed to improve research skills. The courses in the Research Core will be designed by the student's area program committee.

Concentration and Minor: (at least 30 semester hours) may be selected from the following: Accountancy, Economics, Finance, Management, Management Information Systems and Decision Sciences, or Marketing. A minimum of 15 hours of 8000 level courses is required in the concentration. The minor (9 hours minimum) may be selected from the fields in the approved concentrations or from the several business-related specialties inside and outside the Fogelman College. A minor must be approved by the student's area program committee, the graduate program advisor of the area offering the minor, and the College PhD Director. Courses graded on S, U, or IP may not be used to satisfy the minimum hours required for Research Core or Concentration and Minor.

Comprehensive Examinations: Each student will write comprehensive examinations in the concentration and in the minor field. Comprehensive examinations in either the concentration or minor may be taken as soon as all of the course work required for the PhD degree has been successfully completed or the student is enrolled in the last single course of the program of study. After satisfactorily completing the written comprehensive examinations, each student must pass a general oral examination integrating all work. The student's program committee, with participation from the minor, will

organize and administer the oral examination. Comprehensive examinations are given each year in January and July.

Dissertation: (18 semester hours) requires major research of an original and creative nature and must meet the requirements of the Graduate School. The dissertation is the research capstone of the PhD program and must be a significant contribution to the study of Business Administration. The student will register for dissertation credit hours every semester after passing the comprehensive examinations. After the dissertation is approved by the dissertation committee, the candidate will be given a final oral examination primarily dealing with the dissertation. The examination will be conducted by the dissertation committee. All members must be present at the examination. If the student's performance on this examination is satisfactory as judged by the committee, all requirements for the degree will have been completed. **In the Fogelman College, no credit earned more than 10 years prior to the student's expected date of completion of the doctoral degree will be applied toward satisfying requirements of the doctoral degree.** Students should note that the 10-year time limit is more stringent than the University Graduate School policy.

Research Tool: Students are expected to acquire competence in using research tools and techniques beyond and above what is acquired with the Research Core. These tools and techniques may include statistical methods, computer programming, specialized research-related software, or proficiency in a relevant foreign language. Students must demonstrate competency in this area before taking comprehensive examinations. Area committees determine competency.

Residency: A minimum of thirty (30) semester hours of doctoral course credits, exclusive of prerequisites, language, mathematical competency, and dissertation, must be completed at The University of Memphis. Students enrolled in the doctoral program also must meet the University residency requirements as defined in the Admissions and Regulations section of this catalog.

FINANCIAL ASSISTANCE

A number of doctoral and master's graduate assistantships are available to full-time students. Doctoral assistantships may be available to those students with a GMAT score of 600 or above. Graduate assistants provide part-time assistance to the concentration area in teaching and research. Current compensation for doctoral students ranges from \$9,000 to \$12,000, for master's students from \$4,000 to \$5,000, in addition to a full tuition waiver. The Fogelman College also has a limited number of doctoral fellowships available.

BUSINESS ADMINISTRATION

The courses listed below are designated with "BA" numbers in order that they may be available to advanced graduate students with a major in the Fogelman College of Business and Economics. They may be accepted toward the completion of the degree requirements.

BUSINESS ADMINISTRATION (BA)

7105-8105. Contemporary Electronic Commerce (3). (Same as COMP 7105-8105). Technical and managerial foundations of electronic commerce, including electronic infrastructure, data transfer, mining and warehousing, security; one-to-one marketing; impact of electronic commerce on resource planning, project development, organization and management of the business environment; new forms of the virtual enterprise. PREREQUISITES: ISDS 7190, COMP 7100, or permission of the instructor.

7110-8110. Advanced Electronic Commerce (3). (Same as COMP 7110-8110). Advanced concepts and strategies for EC, including implementation platforms, multimedia integration, human-computer interaction, and ethical issues; impact of EC as a force in technology advances, consumer behavior, and changing the nature of the business world. **PREREQUISITES:** BA 7105, COMP 7105, or permission of the instructor.

7700-30. Special Topics in Business Administration. (1-6). Special study of problems in business and economics. Topic areas change each semester as determined by new developments in business. **PREREQUISITE:** Permission of associate dean for academic programs.

7800. Internship in Business. (1-6). Internship in business organization to gain on-the-job experience in actual management environment; project to be approved by College Internship Director and supervised by graduate faculty. **PREREQUISITES:** 15 semester hours of graduate credit and minimum GPA 3.25.

†7900-8900. Research Practicum in Business for Graduate Students. (1-6). Practical demonstration of and experience in the design, practice, and methodology of research in business. May be repeated for a maximum of 6 credit hours.

†7901-8901. Teaching Practicum in Business for Graduate Students. (1-6). Practical demonstration of and experience in the art of teaching business topics. May be required of PhD students.

†7902-8902. Workshop in Business for Graduate Students. (1-6). Presentations of research methods and scholarly work by faculty, graduate students, and visiting scholars in business.

7910. Problems in International Business. (1-6). Directed independent or group study and research in international business area. Study projects may be designed by student(s) with approval of supervising faculty member. **PREREQUISITE:** Permission of Associate Dean for Academic Programs.

†7920. Studies in the Contextual Environment of International Business. (1-12). Accommodates transfer credit (preapproved by IMBA coordinator) taken abroad; business, language, and area study courses in cultural, economic, historical, philosophical, political, social or legal context. Credit varies according to content; no more than 12 hours may apply toward degree. Restricted to students enrolled in IMBA concentration.

7950. Practicum in International Business. (3-9). Practicum in foreign business or academic organization to gain management skills and experience; work experience in non-English speaking country; enrollment must be approved by the Associate Dean for Academic Programs. **PREREQUISITE:** 12 hours of graduate business courses.

7970-8970. Electronic Commerce Project. (3). (Same as COMP 7970-8970). Research in an electronic commerce project under the supervision of a faculty member and possibly a liaison from commerce or industry. **PREREQUISITES:** BA 7110, COMP 7110 or permission of the instructor.

†8800. Reading for Comprehensives (1-12). Directed readings as preparation for comprehensive examinations. Arranged on an individual basis; limited to Ph.D. students in Business Administration. May be repeated for a maximum of 12 credit hours. **PREREQUISITE:** Students must have completed or be in the last semester of required course work and have permission of the College Ph.D. coordinator.

8920. Dissertation Seminar. (1-3). Research design and methodology in administrative sciences; guidance in preparing dissertation proposal; students present progress reports to other seminar members to critique the progress of fellow students and acquire skills and knowledge in research design and methodologies. To be taken during the last 12 hours of doctoral coursework.

†9000. Dissertation (1-12). Independent research for Doctor of Business Administration degree. **PREREQUISITE:** Successful completion of comprehensive exams or permission of Director of Ph.D. Programs.

†Grades of S, U, or IP will be given.

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I. Objectives

In the Area of Accountancy, qualified students may work toward the following degree programs: PhD in Business Administration; Master of Science with a concentration in Accounting, Accounting Systems, or Taxation; or a Master of Business Administration with a concentration in Accounting.

II. General Admission and Prerequisite Requirements for Master's Programs

A. Program Admission

Admission to the master's degree programs is granted to graduates of accredited colleges and universities who show high promise of success in graduate business study. Qualified candidates may enter the program at the beginning of any semester. The admission requirements include satisfactory performance on undergraduate course work (minimum GPA of 2.75) and a recent (five years or less) GMAT admissions examination score (minimum 450). Achievement of minimum scores does not guarantee admission. In 1999, the average GMAT score for applicants admitted to master's programs was approximately 530.

B. General Prerequisites

- Students must have general education courses, which include the following: (1) English communication arts including writing, composition, and oral expression; (2) Behavioral sciences and humanities such as psychology, anthropology, and sociology; (3) Political and legal environment of business and society such as political science, public administration, and ethics; and (4) Mathematics including probability theory and statistics.
- Students must complete Alternate Core I prerequisites summarized at the beginning of the College section.
- Successful completion of the following accounting courses or their equivalents is also required unless credit was previously received:
 - ACCT 3110, 3120, Intermediate Accounting I and II;
 - ACCT 3310, Cost Accounting;
 - ACCT 3510, Federal Income Tax I;

- d. ACCT 4020, Accounting Systems;
- e. ACCT 4240, Auditing

III. Master of Science Degree

The objective of the Master of Science degree with a major in Accounting is to offer students a balanced integrative approach to accounting education. In this interdisciplinary view, the interrelation of accounting to other areas of business is stressed. Thus, the accounting classes will synthesize accounting with the financing, marketing, operating, and production functions where applicable. The 30-hour master's program emphasizes business knowledge for decision making with applications. Three concentrations within the major are offered: accounting, accounting systems, and taxation.

Each student must complete a minimum of 30 hours of graduate study. At least 12 hours must be in accounting 7000 level courses beyond ACCT 7000 and 7110. Internship hours do not count toward a master's degree in accounting.

A. Core requirement: ACCT 7210—Advanced Financial Reporting (3).

B. General Requirements: 15 hours selected in consultation with accountancy master's coordinator, including ACCT 6241—Auditing and Assurance (3) or equivalent; ACCT 6520—Federal Income Tax II (3) or equivalent; a non-accounting elective (master's level) (3) related to student's concentration and approved in advance by the concentration advisor; one of the following: ENGL 7807—Workshop: Government and Corporate Writing, or ENGL 7808—Workshop: Scientific and Technical Writing, or MGMT 7173—Executive Communication (3); and one of the following: MKTG 7510—Negotiation Strategies or MKTG 7140—Strategic Marketing (3).

C. Concentrations: 12 hours

1. **Accounting:** ACCT 7320, Management Control Systems (3); ACCT 7420, Advanced Accounting Systems (3); ACCT 7241, Internal Auditing (3); ACCT 7120, Advanced Accounting Theory (3); accounting elective approved in advance by the concentration advisor (3).
2. **Taxation:** ACCT 7510, Tax Research and Theory (3); ACCT 7511, Federal Taxation of Partnerships and Partners (3); ACCT 7512, Federal Income Taxation of Corporations and Shareholders (3); ACCT 7514, Estate and Gift Taxation (3).
3. **Accounting Systems:** ACCT 7420, Advanced Accounting Systems (3); ACCT 7421, Multi-user Accounting (3); ACCT 7422, Accounting Systems Development (3); and a 3-hour related elective approved in advance by the concentration advisor.

IV. Master of Business Administration with Concentration in Accounting

The objective of the Master of Business Administration program with a concentration in accounting is to provide students with basic conceptual knowledge of accounting and special insights into the nature, limitations, interpretations, and uses of financial information that serve as a foundation for accounting career development. In addition to the 24-hour general requirements of the MBA program, which include ACCT 7170 and either ACCT 7320 or ACCT 7330, students take the following accounting courses:

Concentration (9 hours): ACCT 7120, Advanced Accounting Theory (3); and two accounting electives (any 6 hours of ACCT 6241, 6520, and 7000 level accounting courses except ACCT 7000 or 7110) (6).

V. PhD Program

See the beginning of this college section for admission, prerequisites, and program requirements. Additional guidelines are outlined in the PhD Student Handbook, which is available from the Director of PhD Programs.

ACCOUNTANCY (ACCT)

6241. Information Systems Auditing and Assurance. (3). (0551). Auditing of computer-based accounting systems; emphasis on audit software and computer auditing techniques used to evaluate accounting system controls and test accounting data integrity; nature and use of expert systems in accounting with emphasis on their use as an audit tool.

6520. Federal Income Tax II. (3). Introduction to the federal income taxation of corporations, partnerships, estates, and trusts.

7000. Financial Accounting. (3). (7001). Accelerated and in-depth introduction to the conceptual foundations of accounting as a dynamic information system for measuring and communicating economic and financial data for planning and control purposes. Primarily for non-business students but is acceptable to remove accounting prerequisites for the MBA and MS programs.

7110. Managerial Accounting for Decision Making. (3). (7010). Managerial accounting analysis using cost/benefit analysis, capital budgeting, variable (direct) costing, product costing and pricing, variance analysis and other decision-making techniques as well as case studies and/or research projects. PREREQUISITE: ACCT 2020 or 7000, or consent of director. Not open to students with more than 12 hours in accounting.

7120. Advanced Accounting Theory. (3). Conceptual framework and theoretical aspects of accounting with emphasis on modern account-

ing trends; contemporary controversial topics in accounting; accounting research.

7170. International Accounting. (3). International accounting problems, including accounting by multinational corporations, foreign currency translation, institutional structures, financial control and reporting for international operations, comparative analysis of accounting principles and auditing standards of various countries. PREREQUISITE: ACCT 7000 or equivalent.

7172. Global Accounting Policies. (3). Accelerated and in-depth introduction to conceptual foundations of financial and managerial accounting; selected tax topics. Restricted to students enrolled in IMBA concentration.

7210. Advanced Financial Reporting. (3). Partnerships, statement of affairs, receiver's accounts, statement of realization and liquidation, business combinations and consolidated financial statements, fund accounting, international accounting. PREREQUISITE: ACCT 3120.

7241. Internal Auditing. (3). Authoritative internal audit standards, ethics of internal auditors, techniques of efficiency and effectiveness audits. PREREQUISITE: ACCT 4240.

7310. Advanced Cost Accounting (3). Budgets, determination of standards, variances and their functions, cost reports, profit projecting, direct costing, gross profit and breakeven analysis, cost-profit volume analysis, capital expenditure control, comparative cost analysis. PREREQUISITE: ACCT 3310.

7320. Management Control Systems. (3). Controllorship function; evolution of management accounting; conceptual framework of management accounting compared and contrasted with financial accounting; functional tools used by controllers; emphasis on research, written and oral communication skills in context of management accounting. PREREQUISITE: ACCT 3310.

7330. Cost Management Systems. (3). Concepts and applications of cost management systems, including strategic planning and control, activity based costing and management, total quality control, product life-cycle cost, performance evaluation, target costing, just-in-time inventory system, and continuous improvement. PREREQUISITE: ACCT 3310.

7420. Advanced Accounting Systems. (3). Accounting systems analysis and design; emphasis on database information structures; advanced system analysis tools; integrating accounting and computer controls; use of state-of-the-art database package leading to development of working accounting model; on-site practicum. PREREQUISITES: ACCT 4020 and ISDS 2749.

7421. Multi-User Accounting Systems. (3). Environment of multiuser accounting; audit trail and internal control considerations in centralized versus distributed accounting systems; design considerations of computerized accounting subsystems, including accounts receivable, accounts payable, payroll, and general ledger.

7422. Accounting System Development. (3). Development of working computerized accounting systems; overview of CASE Tools for accounting systems development; accounting file design, accounting user interface characteristics, accounting report generation considerations; complete development and programming of working accounting subsystem modules by student teams. PREREQUISITE: ACCT 7421.

7510. Tax Research and Theory. (3). Advanced study of federal taxation with emphasis on tax research methodology and various theoretical precepts; integration of basic tax knowledge with skillful tax research to accomplish desired ethical tax objectives. PREREQUISITE: ACCT 6520.

7511. Federal Income Taxation of Partnerships and Partners. (3). Tax law organization, operation, and liquidation of partnerships; general overview of Subchapter K, acquisitions of partnership interests, basis of partner's partnership interest, taxation of partnership operations, transfers of partnership interests, partnership distributions, death or retirement of partner, adjustments to basis of partnership assets. PREREQUISITE: ACCT 7510 or permission of the instructor.

7512. Federal Income Taxation of Corporations and Shareholders. (3). Tax law: organization, operation, and liquidation of corporations; organization of corporation under Code Section 351 and related problems; corporation's capital structure; corporate income tax; corporate elections under Subchapter S; stock redemptions and partial

liquidations; and corporate reorganizations and liquidations. PREREQUISITE: ACCT 7510 or permission of the instructor.

7514. Estate and Gift Taxation. (3). Transfer taxes (gift tax, estate tax, generation-skipping transfer taxes; all taxes on transfer of property accumulated after imposition of income tax); federal gift and death taxes with emphasis on tax planning. PREREQUISITE: ACCT 7510 or permission of the instructor.

7515. Tax Administration, Practice, and Planning Considerations. (3). Introduction to overall organizational structure of Internal Revenue Service and operating procedures concerning individual rulings, additional issuances, the audit process, and its administrative powers; rules governing tax practice including Treasury Department Circular 230; strategies in seeking Administrative Rulings, the IRS audit, litigation considerations, penalties, statute of limitation of refund claims. PREREQUISITE: ACCT 7510 or permission of the instructor.

7518. Selected Topics in Taxation. (3). Special tax considerations of individuals, partnership, corporations, estates, trusts, exempt organizations, and governmental entities. PREREQUISITE: ACCT 7510 or permission of the instructor.

7520. Federal Income Taxation of Trusts and Estates. (3). Tax law as it relates to Subchapter J; general overview of nature of trusts and estates during their existence and administration, taxable income of trusts and estates, taxation of beneficiaries, character of income, throw-back rule, grantor trusts, tax planning considerations. PREREQUISITE: 7510 or permission of the instructor.

7910. Problems in Accounting. (1-3). Directed independent reading and research projects in an area selected by the student with the approval of the supervising faculty member and Faculty Director. Proposed plan of study must be approved prior to enrollment. PREREQUISITE: Permission of the director.

7911. Accounting Internship. (1-6). Internship in business organization to gain on-the-job experience and to develop writing, organizational, and applied performance skills. Projects approved and supervised by area of Accountancy. NOTE: Credit not applicable to accounting master's degrees. PREREQUISITE: Graduate standing and permission of College Internship Director.

7920-7929. Special Topics in Accountancy. (1-3). Varied topics. May be repeated with change in topic. PREREQUISITE: Permission of Faculty Director.

†7996. Thesis. (3-6).

8000. Independent Accounting Research. (3). Research problem related to student's field of concentration under direction of a faculty member.

8610. Research Methods in Accounting. (3). Scientific method of research, different taxonomies and framework of research concepts; critiques of accounting research articles; formulation and execution of researchable topic that synthesizes knowledge gained through study of research topics.

8621. Seminar in Empirical Economic Accounting Research. (3). Scientific philosophy and method of empirical research that tests economic theories of accounting.

8710. Financial Accounting Research. (3). (8920). In-depth study of existing body of literature in various areas of empirical accounting research; emphasis on research design and methodology; design and development of individual research projects.

8720. Seminar in Accounting Research and Human Information Processing. (3). (8210). Current research on decision making and judgement behavior in accounting; theories, models, and empirical evidence about how accountants make professional judgements; selected readings from relevant source fields; alternative methods for conducting empirical research.

8730. Managerial and Behavioral Accounting Theory and Research. (3). (8310). Theoretical framework of managerial and behavioral accounting related to decision-making processes of management; influence of behavioral science on budgeting techniques and managerial information and control systems; behavioral accounting research.

8731. Seminar in Management Accounting. (3). Background for management accounting research; quantitative aspects of management accounting; analytical and communication skills in decision making; mathematical modeling research in management accounting; alternative conceptual approaches to development of models to explain

existence of observed management accounting techniques. PREREQUISITES: ACCT 7320 or equivalent and admission to doctoral program.

8740. Capstone Research Seminar in Accounting. (3). Review, analysis, and integration of scholarly research in accounting; development of critical thinking and communication skills for designing, executing, and evaluating scholarly accounting research. PREREQUISITES: Intended for doctoral students in final year.

†Grades of S, U, or IP will be given.

DECISION SCIENCES

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PhD (1978), The University of Georgia; CPIM (1980) [2006]
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PhD (1993), Michigan State University [2003]
DONNA RETZLAFF-ROBERTS, Associate Professor
PhD (1990), The University of Cincinnati [2003]

ASSOCIATE MEMBER

KIRAM J. DESAI, Instructor
PhD (1977), The Pennsylvania State University [2005]

I. In the Area of Decision Sciences qualified students may work toward a Master of Business Administration degree with a concentration in Management Science and Operations Management and the PhD in Business Administration with a concentration in Management Information Systems and Decision Sciences. The area offers courses in production operations management and quantitative methods.

II. MBA Program

See beginning of this College section for admission, prerequisite, and program requirements. Management Science and Operations Management concentration students should take their three electives from ISDS courses as approved by the Decision Sciences area master's coordinator.

III. PhD Program

See the beginning of this College section for admission, prerequisite, and program requirements. Additional guidelines defined by the area are available from the PhD program coordinator.

DECISION SCIENCES (ISDS)

7020. Statistical Methods in Business and Economics. (3). Statistical concepts and methodology useful in understanding, assessing, and controlling operations of business and economic society. PREREQUISITE: ECON 6810 or equivalent.

7080. Principles of Production and Operations Management. (3). Role of P/OM function and relationship to other functional areas; basic production techniques and tools for both manufacturing and service operations. PREREQUISITE: ISDS 3711 or 7020.

7120. Quantitative Methods for Business Decisions. (3). Applications of management science models for managerial control and research;

concepts and techniques of research design integrated with linear programming, inventory, network, and simulation models; computer solutions and managerial interpretation with regard to management science models, statistical techniques, and information systems concepts. PREREQUISITES: ISDS 7020 or equivalent.

7170. International Production Operations Management. (3). Tools and techniques to capture the opportunities of world markets for enhancing competitiveness of a business through higher productivity and quality in a time-based mode of operations; effective resource utilization and reliable supply-chain strategies emphasized. Focus on creating and managing global suppliers and global customers. PREREQUISITE: ISDS 7080 or permission of instructor.

7310-8310. Seminar in Production and Operations Management. (3). Problems and issues encountered in productions and operations management environment; master planning, capacity management, resources planning, and shop floor management; managerial decision-making process for improving productivity and better utilization of scarce resources; implementation problems and solutions; manufacturing and service operations. PREREQUISITE: ISDS 3510 or equivalent or permission of instructor.

7311-8311. Seminar in Materials Planning and Management. (3). Traditional and modern theories and techniques of materials management; organization for effective materials management systems; requirements planning and resources planning; design and implementation consideration, role of top management in materials planning and management; functional interface problems and database integrity. PREREQUISITE: ISDS 3510 or equivalent or permission of instructor.

7312-8312. Seminar in Manufacturing Resources Planning. (3). Multifunctional analysis of problems and issues encountered during planning of resources in manufacturing and service operations; emphasis on role of computer and automation in control of scheduling, cash flows, labor capacity planning, inventory, distribution, and resource requirements; systems-based. PREREQUISITE: ISDS 3510 or equivalent or permission of instructor.

7313-8313. Managing Global Production Operations. (3). Technical and business factors affecting global operations; emphasis on operation systems management, methods for decision making and ongoing challenges necessary to meet the needs of dynamic world market place. PREREQUISITE: ISDS 3510 or permission of instructor.

7425-8425. Deterministic Models for Management Science. (3). Deterministic models concerned with optimal allocation of limited resources among competing activities; business applications of linear programming including duality and post-optimality analysis as well as branch-and-bound and network flow methods of integer linear programming. PREREQUISITE: ISDS 7120 or equivalent.

7430-8430. Advanced Quantitative Topics for Business Decisions. (3). Advanced study of management decision-making using various quantitative methods of analysis; specialized applications of specific foundation courses in management science. PREREQUISITES: ISDS 7120 and ECON 6810 or equivalent.

7431-8431. Applied Modeling for Business Decisions. (3). The application of management science modeling across business disciplines through readings, case studies, and projects; computer modeling languages utilized. PREREQUISITES: ISDS 7120 and ECON 6810 or equivalent.

7450-8450. Simulation and Analysis of Business Systems. (3). Methods and techniques utilizing data processing, statistics, probability, and operations research; applications include inventory systems, production, scheduling, and waiting-line problems; includes construction of computer simulation model, model validation, analysis of results, and various simulation languages, such as GPSS and SIMSCRIPT. PREREQUISITES: ISDS 7120 and ECON 6810 or equivalent.

7910-8910. Problems in Management Information Systems and Decision Sciences. (1-6). Directed independent research projects in an area selected by the student with approval of supervising faculty member and Faculty Director. Proposed plan of study must be approved prior to enrollment.

7921-8921. Seminar in Decision Sciences Research. (3). Some statistical techniques available to business researcher; topics may include: contingency tables, bivariate correlation analysis, regression analysis, ANOVA, discriminant analysis, and factor analysis; use of

computerized statistical packages and interpretation of results of packages. PREREQUISITE: ISDS 2711 or 7020 or equivalent.

8530. Survey of Statistical Techniques in Business Research. (3). Introduction to statistical methods pertinent to business research; hypotheses testing procedures, association analyses, regression and forecasting techniques, and nonparametric methods; intensive research orientation and use of statistical software; critical review of current usage of various research and data analysis techniques. PREREQUISITE: ISDS 7020 or equivalent and working knowledge of SPSS.

8540. Multivariate Analysis for Business Research. (3). Multivariate techniques available to the business researcher; use of computerized statistical packages and their interpretation. PREREQUISITE: ISDS 8530 or equivalent.

ECONOMICS

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PhD (1980), Ohio State University [2007]
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DAVID K. SOLOMON,
PharmD (1970), University of Tennessee-Memphis [2001]
MARIANO TOMMASI,
PhD (1991), University of Chicago [2003]

AFFILIATE MEMBER

- DHARMENDRA DHAKAL, *Instructor*
PhD (1991), Southern Illinois University [2004]

I. In the Area of Economics, qualified students may work toward the MA degree with a major in Economics, the MBA degree with a concentration in Economics, or the PhD degree in Business Administration with a concentration in Economics.

II. MA Degree Program**A. Program Admission:**

1. Satisfactory performance on the Graduate Record Examination (Satisfactory performance on the Graduate Management Admission Test may be acceptable with approval of the Faculty Director of Master's Programs.)
2. Satisfactory undergraduate grade point average.

B. Program Prerequisites:

Students should have successfully completed or complete ECON 3310, Microeconomic Theory; ECON 3320, Macroeconomic Theory; ISDS 2710 and 3711, Business Statistics I and II (ISDS 7020 is an acceptable substitute for ISDS 2710 and 3711); ECON 6810 or equivalent.

C. Program Requirements:

Each candidate has the choice of taking a written, comprehensive examination or writing a thesis at the end of course work. Regardless of which option is chosen, 9 hours of the student's course work must be devoted to the following: ECON 7300, ECON 7310, and ECON 7320.

1. **Examination Option:** Each candidate must complete a minimum of 33 semester hours of graduate course work, exclusive of MA program prerequisite courses and MBA Alternate Core I courses. The 33 hours must include a minimum of 21 hours of approved course work in Economics. The remaining 12 hours, with approval of the department graduate adviser, may be taken in collateral courses. At least 24 hours must be in courses designated for graduate students (7000 level or above). Each candidate must pass a written examination in microeconomic theory and macroeconomic theory. A maximum of two attempts within a year of the first attempt is permitted.
2. **Thesis Option:** Each candidate must complete a minimum of 30 semester hours of graduate course work, exclusive of MA program prerequisite courses, MBA Alternate Core I courses, and Thesis Hours. The 30 hours must include a minimum of 18 hours of approved course work in Economics. The remaining 12 hours, with approval of the department graduate adviser, may be taken in collateral courses. At least 21 hours must be in courses designated for graduate students (7000 level or above). Each student will register for at least 3 hours (and not more than 6 hours), write and defend a thesis under the guidance of a faculty committee. A student who fails to complete the thesis after having registered for the maximum degree credit allowable must register for thesis credit each academic semester until the thesis is completed.

III. MBA Program

See the beginning of this College section for admission, prerequisites, and program requirements. Nine hours of economics courses above the level of ECON 7100 approved by the Economics Master's Coordinator comprise the concentration.

IV. PhD Program

The objective of the PhD in Business Administration with a concentration in Economics is to prepare candidates for a successful academic or professional career in economics and business. Through an intensive, advanced level training in both economic theory and quantitative methods, students learn to conduct independent research and prepare for various responsibilities of a professional career. The Economics area has an outstanding faculty with a strong orientation in applied as well as theoretical research. For admission, program content, and financial aid information, see the beginning of this College section, or contact the Economics PhD Program Coordinator

ECONOMICS (ECON)

6130. Government Regulation of Business. (3). The several approaches to legal and legislative control of business—especially tax laws, commission regulation, and anti-monopoly legislation—are considered in view of the impact of each on industrial operating policy and corporate social responsibility.

6810. Quantitative Economic Analysis. (3). Introduction to the application of mathematical tools in business and economics; review

of matrix algebra, differential and integral calculus; optimization with and without constraints; comparative statistics.

7010. Economic Theory. (3). Investigation of microeconomic and macroeconomic theory; topics include: supply and demand, production and cost, competition and monopoly, income determination, unemployment, inflation, and government budget. PREREQUISITE: Fewer than 6 hours of undergraduate economics or permission of instructor.

7100. Business Applications of Economic Theory. (3). (7020). Application of economic concepts to business enterprise. Emphasis on demand and supply analysis, efficient production and cost control, pricing and output decisions under alternative market types, income and employment determination, and impact of inflation and government on business firm. PREREQUISITE: ECON 7010 or equivalent or permission of instructor.

7101. Essentials of Economics for International Business. (3). Essential economic theory and applications to international business; application of economic concepts such as the market model, consumption and production theory, income and employment determination in an international environment; elementary international economics for business management. PREREQUISITES: Admission to IMBA concentration or permission of instructor.

7110-8110. Managerial Economics. (3). Economic rationale underlying key management decisions; managerial problems identified and examined in light of relevant economic concepts; remedial action plotted on basis of economic logic. PREREQUISITE: ECON 7100 or 7300 or equivalent or permission of instructor.

7120-8120. Advanced Quantitative Economic Analysis. (3). Advanced mathematical methods used in economics, finance, accounting, and management science with specific applications to micro- and macroeconomics; topics include constrained, unconstrained, and dynamic optimization, comparative statistics, and optimal control. PREREQUISITES: ECON 6810 or permission of instructor.

7125-8125. Business and Economic Research. (3). Fundamental application of statistical inference, research software, data sets, and econometrics. PREREQUISITES: ISDS 7020 and MATH 1312.

7126-8126. Economic Forecasting. (3). Statistical models for forecasting and measuring risk, growth, cyclical and seasonal patterns in business, and economic time series. PREREQUISITE: ECON 7100 or permission of instructor.

7130-8130. Industrial Organization. (3). How different types of markets work; nature of the firm; monopoly; monopolistic competition and product differentiation; oligopoly; repeated games and tacit collusion; entry, accommodation, and exit. PREREQUISITE: ECON 7310-8310 or permission of instructor.

7170. International Trade and Investments. (3). Introductory survey of trade theory and international macroeconomics; traditional issues of international trade theory, including why countries trade, distributional effects, policies; basic concepts and issues in international macroeconomics, including balance of payments and international capital flows, exchange rates; effects of macroeconomic policies under alternative exchange rate regimes. PREREQUISITE: ECON 7010 or permission of instructor.

7172-8172. International Competitiveness in the World Economy. (3). Meaning and measurement of international competitiveness; microeconomic and macroeconomic aspects; government policy implications; strategic intervention. PREREQUISITE: ECON 4350 or 7170 or permission of instructor.

7175-8175. International Trade Theory and Policy. (3). Advanced treatment of the theory of international trade; the theory of comparative advantage, the Heckscher-Ohlin model, specific factors, returns to scale and product life-cycle hypotheses; applications of tariffs and commercial policies, international factor movements, and selected topics in international economic development. PREREQUISITE: ECON 7310-8310 or permission of instructor.

7176-8176. International Monetary Theory and Policy. (3). Advanced treatment of open economy macroeconomics; determination of internal and external balance; balance of payments accounting; models of balance of payments adjustment, foreign exchange rate determination, and international capital flows; stabilization mechanisms and policies. PREREQUISITE: ECON 7320-8320 or permission of instructor.

7210-8210. Labor Economics. (3). Use of theory and statistical techniques to analyze determination of wage rates and employment and working conditions in labor markets under conditions of competition and collective bargaining. PREREQUISITE: ECON 7100 or 7300 or permission of instructor.

7300. Economic Theory and Decisions. (3). Basic exposition of decision-making theories of consumers and firms under different market structures and informational settings. PREREQUISITES: ECON 6810 and 7010 or equivalents of both.

7310-8310. Advanced Microeconomics I. (3). Economic models of consumers, firms, and markets; basic theories of the firm and consumer; choice under uncertainty; market structure and traditional models of imperfect competition. PREREQUISITE: ECON 3310 and 3320, or ECON 7300, or permission of instructor.

7312-8312. Economic Behavior and Organizations. (3). Models of real-world economic behavior and institutions; analysis of nature of modern corporation as an economic organization; focus on roles played by incomplete information, transactions costs, legal structure and evolution of differences in capabilities in shaping hierarchies, contractual arrangements, and other aspects of organizational relationships. PREREQUISITE: ECON 7300.

7313-8313. Economics of Risk and Uncertainty. (3). Economics of risk and information: individual choice under uncertainty; mean-variance models and their relation to expected utility; stochastic dominance; applications to insurance, asset demands, capital budgeting, etc.; market equilibrium and information; adverse selection and signaling; moral hazard and incentives. PREREQUISITE: ECON 7310-8310 or permission of instructor.

7320-8320. Advanced Macroeconomics I. (3). Microeconomic foundations of macroeconomic models; comparison and contrast of macroeconomic models, neoclassical and Keynesian, new neoclassical and neo-Keynesian. PREREQUISITE: ECON 3310 and 3320, or ECON 7300, or permission of instructor.

7322-8322. Monetary Theory and Policy. (3). Role of money in the macroeconomy; includes theory of financial structure, money creation and monetary control, theory of money demand; general equilibrium financial models: static analysis, short-run dynamics, monetary growth; rules versus discretion debate: optimal monetary policy, historical conduct of monetary policy. PREREQUISITE: ECON 3320, 7300, or 7320-8320, or permission of instructor.

7330-8330. History of Economic Thought. (3). In-depth analysis of great thinkers in development of economic theory and policy: Adam Smith, David Ricardo, John Stuart Mill, Karl Marx, Alfred Marshall, John Maynard Keynes, and selected contemporary economists. PREREQUISITE: ECON 7100 or equivalent, or permission of instructor.

7501-8501. Urban and Regional Economics. (3). Analysis of spatial aspects of economic theory and particular problems of urban and regional economies. Topics include location theory, regional growth and trade patterns, and economics of housing and poverty. PREREQUISITE: ECON 7100 or 7300, or permission of instructor.

7700-8700. Economics of Electronic Commerce. (3). Market characteristics of electronic commerce, economic impact of electronic commerce on terrestrial commerce; broader issues of property rights, government regulation, information infrastructure maintenance, and business cycles. PREREQUISITE: ECON 7010 or equivalent.

7710-8710. Health Care Economics. (3). Unique nature of health care as an economic good; health care market and its participants, including patients, physicians, and hospitals; financing and delivery of personal health care in the United States and other countries.

7711-8711. Applications of Health Care Economics. (3). Analysis of health care expenditures, employee health plans, and third party reimbursement mechanisms; economics of insurance design in presence of moral hazard and adverse selection; business and union strategies for health care; local, state, and national health care reform. PREREQUISITE: ECON 7710 or permission of instructor.

7712-8712. Pharmaceutical Economics. (3). Methodology and case studies of pharmaceutical economics and quality of life aspects of medicinal intervention; emphasis on comparative pharmaceutical care systems and payment mechanisms of developed and developing countries. PREREQUISITE: ECON 7710 or permission of instructor.

7720-8720. Economics of the Public Sector. (3). Emphasis on the production of public goods, financing of public goods, problems created by a federal fiscal system; current problems and policy decisions; public finance theory and policy will be analyzed.

7730-8730. Economics of Not-for-Profit Organizations. (3). Origins, logic, and growth of not-for-profit organizations; entrepreneurship in this setting; rationale for exempting organizations from taxation; unfair competition; roles in market economies. PREREQUISITE: ECON 7100 or permission of instructor.

7810-8810. Econometrics I. (3). Classical multivariate regression analysis and statistical inference under ideal and non-ideal conditions; theoretical foundations with emphasis on empirical implementation; estimation of models with categorical data, non-linearity, simple dynamics, or panel data. PREREQUISITE: ECON 7125-8125 or permission of instructor.

7811-8811. Econometrics II. (3). Continuation of ECON 7810-8810. Estimation and statistical inference in simultaneous equations models and models with discrete or limited dependent variables; seemingly unrelated regressions, unobservable variables, identification and estimation in a simultaneous system, binomial and multinomial choice, truncated or censored data, and sample selectivity. PREREQUISITE: ECON 7810-8810 or permission of instructor.

†7900-8900. Research Practicum in Economics for Graduate Students. (1-6). Practical demonstrations of and experience in the design, practice, and methodology of research in the field of economics. Required of all PhD students and recommended for all graduate assistants. May be repeated for a maximum of 6 credit hours.

†7901-8901. Teaching Practicum in Economics for Graduate Students. (1-6). Practical demonstrations of and experience in the art of teaching economics topics. Required of all PhD students and recommended for all graduate assistants. May be repeated for a maximum of 6 credit hours.

†7902-8902. Workshop in Economics for Graduate Students. (1-3). Presentations of research methods and scholarly work by faculty, graduate students, and visiting scholars in economics. Required of all PhD students and recommended for all graduate assistants. May be repeated for a maximum of 3 credit hours.

7910-8910. Problems in Economics. (1-6). Directed independent reading and research in an area selected by the student with the approval of the supervising faculty member and Faculty Director. Proposed plan of study must be approved prior to enrollment.

7940-49-8940-49. Special Topics in Economics. (1-3). Special areas of economics not otherwise included in the curriculum. Consult *Schedule of Classes*.

†7996. Thesis. (3-6). Independent research for the master's degree.

8311. Advanced Microeconomics II. (3). Continuation of ECON 7310-8310. Advanced development of theories of the consumer and firm; general equilibrium analysis and welfare economics; game theory, with applications to imperfect competition. PREREQUISITE: ECON 7310-8310 or permission of instructor.

8321. Advanced Macroeconomics II. (3). Seminar focusing on recent advances in macroeconomic theory; topics may include rational expectations and the policy effectiveness debate; economic dynamics and growth theory; asset-pricing models; neo-Keynesian models with imperfect competition and coordination failure. PREREQUISITE: ECON 7320-8320 or permission of instructor.

†Grades of S, U, or IP will be given.

FINANCE

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I. The Area of Finance offers the Master of Science degree with a major in Business Administration and a concentration in Finance, Insurance, and Real Estate; the Master of Business Administration with a major in Business Administration and a concentration in Finance, Insurance, and Real Estate; and the PhD in Business Administration with a concentration in Finance.

II. MS in Business Administration Program

See the beginning of this College section for admission, prerequisite, and program requirements.

A. The concentration in Finance, Insurance, and Real Estate requires:

1. Prerequisites of ACCT 7000 and FIR 7050 or their equivalents.
2. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written.) The required core of courses in the Finance, Insurance, and Real Estate concentration include:
FIR 7150, Financial Management II
FIR 7410, Investment Theory and Portfolio Management, and
FIR 7840, Quantitative Applications for Finance.
3. Three semester hours in a collateral area approved by the Area Master's Coordinator.
4. At least 24 of the 33 credit hours required must be in courses designated primarily for graduate students (7000 level or above).
5. Must pass a written and/or oral examination.

III. MBA Program

See the beginning of this College section for admission, prerequisites, and program requirements. The Finance Area Master's Coordinator will assist the individual student with the selection of specific courses required to earn a finance, insurance, and real estate concentration.

IV. PhD Program

See the beginning of this College section for admission, prerequisites, and program requirements.

FINANCE (FIR)

6610. Cases in Managerial Finance. (3). Application of tools and principles introduced in previous courses to develop up-to-date problem-solving techniques; cases approached from standpoint of top-level management, utilizing both quantitative and qualitative analysis. PREREQUISITE: FIR 7070 or equivalent.

6720. Management of Financial Institutions. (3). Financial policies and decision-making peculiar to financial institutions in the United States; management of institutions consistent with adequate standards of liquidity and solvency. PREREQUISITES: FIR 3410 and FIR 3720.

7050. Financial and Legal Concepts for Business. (3). Business finance and legal, social, and political environment of business; prerequisite for MBA Core II. PREREQUISITE: ACCT 7000 or equivalent.

7070. Financial Management I. (3). (7010). Discounting, risk measurement, valuation, capital budgeting, cost of capital, capital structure, dividend policy, working capital, financial instruments, and markets. PREREQUISITE: ACCT 7000 or equivalent.

7150. Financial Management II. (3). (7610). Analytical tools, concepts, and decision rules for acquisition and allocation of funds by the business firm; topics include capital budgeting under risk, capital rationing, cost of capital, capital structure, dividend policy, and working capital management; cases and readings may be required. PREREQUISITE: FIR 7050 or equivalent.

7170-8170. International Financial Management. (3). (7620). Selected problems in international finance, foreign investment, and the international payments system; gold movements; foreign central banking, and international aspects of money markets; the impact of international financial cooperation. PREREQUISITES: FIR 3410; ECON 3610; or permission of instructor.

7171. International Financial Intermediation. (3). Process that facilitates flow of funds across national borders as a result of capital placements and financing of international trade; detailed analysis of international financial markets and intermediaries; how national governments and international organizations regulate, supervise, and tax financial intermediaries in integrated worldwide financial system.

7172. Global Financial Management. (3). Overview of corporate finance with emphasis on the international environment; present value and the opportunity cost of capital; valuation of future cash flows; capital budgeting; risk and return; long-term financing; dividend policy and capital structure; mergers and acquisitions. Elementary knowledge of accounting, statistics, PC, and microeconomics helpful.

7410-8410. Investment Theory and Portfolio Management. (3). Introductory graduate level course in the area of investments and portfolio management; considers qualitative and quantitative risk and return characteristics of various investment opportunities, fundamental valuation models, timing techniques, efficient markets, speculation and hedging, and portfolio theory and practice. PREREQUISITE: FIR 7070 or equivalent.

7710-8710. Seminar in Investment Theory. (3). Current literature in investment theory and portfolio analysis; topics include statistical techniques of analysis, technical analysis, fundamental analysis, investor perceptions, efficient markets, investigation of risk measurements, portfolio theory and applications, and speculative markets. PREREQUISITE: FIR 7410 or permission of instructor.

7721-8721. Speculative Markets. (3). Conceptual and practical aspects of the functioning of speculative markets in options, futures, and hard assets; stock option strategies, financial engineering, financial futures, stock index options, futures options, contemporary issues in futures and options. PREREQUISITE: FIR 7410 or 3710 or equivalent.

7723-8723. Financial Institutions. (3). Overview of financial markets in the US economic system, principal institutions operating in these markets, economic functions they perform, and products and services they provide; rapidly changing regulatory and competitive environment within which these institutions operate; major current issues whose resolutions will shape the future financial environment.

7724-8724. Micro-Structure Theory. (3). Selected topics on organization and regulation of financial markets, including the way these impact liquidity and risk.

7725-8725. Micro-Structure Applications. (3). Advanced topics on organization and regulation of financial markets and the way these impact liquidity and risk. PREREQUISITE: COMP 6001 or equivalent.

7726-35-8726-35. Current Topics in Finance, Insurance, and Real Estate. (3). Consult *Schedule of Classes*.

7736. Financial Management. (1.5-3.0). Successful financial management of the modern corporation; critical inter-relationships among finance and other functions of the firm; confrontation of financial problems using logic and recent advances.

7810-8810. Advanced Financial Management. (3). The most significant contributions to the advanced literature on managerial finance. Topics include capital budgeting under risk, capital rationing, cost of capital, capital structure, dividend policy, firm valuation, and working capital management. PREREQUISITE: FIR 7150 or equivalent.

7840-8840. Quantitative Applications for Finance. (3). Develops an understanding of fixed income markets and interest rate derivatives. Topics include bond mathematics, interest rate models, fixed income securities, corporate debt, and interest rate derivatives; also applies statistical and quantitative methods to solve problems in derivative securities. PREREQUISITE: FIR 7150.

7910-8910. Problems in Finance, Insurance, and Real Estate. (1-6). Directed independent reading and research projects in the finance, insurance, or real estate areas selected by the student with approval of supervising faculty member and Faculty Director. Proposed plan of study must be approved prior to enrollment.

†7996. Thesis. (1-6). Candidates desiring to write a thesis must fill out an application on the approved form after consulting with the major professor.

8820. Theory and Practice of Financial Management. (3). Study of the more recent advanced literature of managerial finance and its applications; intensive pursuit of approved individual topics; oral presentations of research papers and cases. PREREQUISITE: FIR 8810.

8830. Capital Markets and Institutions. (3). Application of the theory of finance to the analysis of existing financial markets and institutions; emphasis on the structure of the market for corporate capital instruments and the effect of capital market movements on financial decisions.

8850. Seminar in Finance. (3). Emphasis on current issues in private sector finance; designed to encourage students in finance to develop a firm understanding of the important theoretical and empirical contributions to the literature; course will draw on readings and the research projects of individual students.

†Grades of S, U, or IP will be given.

INSURANCE, REAL ESTATE, AND BUSINESS LEGAL STUDIES

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ASSOCIATE MEMBERS

MARS PERTL, *Professor*
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IRVIN L. TANKERSLEY, *Associate Professor of Business Law*
JD (1972), Tulane University [2005]

I. The Area of Insurance, Real Estate, and Business Legal Studies offers the Master of Science degree with a major in Business Administration and a concentration in Real Estate Development and the Master of Business Administration with a major in Business Administration and a concentration in Finance, Insurance, and Real Estate.

II. MS in Business Administration Program

See the beginning of this College section for admission, prerequisite, and program requirements.

A. Concentration in Real Estate Development

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses, of which at least 24 semester hours must be in courses designated primarily for graduate students (7000 level or above).
2. A minimum of 21 semester hours must be completed in the concentration. The required courses are:
FIR 6310, Real Estate Law
FIR 6340, Real Estate Appraisal
FIR 7301, Contemporary Real Estate Theory and Practice
FIR 7302, Decision Process in Development of Commercial and Industrial Real Estate
FIR 7320, Financing Real Estate Transactions
FIR 7350, Real Estate Investment Analysis
FIR 7910, Problems in Finance, Insurance, and Real Estate
3. Three semester hours must be completed in a collateral area approved by the Area Master's Coordinator.
4. Candidates must pass a written or oral comprehensive examination.

III. MBA Program

See the beginning of this College section for admission, prerequisite, and program requirements.

INSURANCE, REAL ESTATE, AND BUSINESS LEGAL STUDIES (FIR)

6011. Estate Planning and Law of Taxation. (3). A survey course of the law of taxation as applied to the transmission of property by gift or death and its impact upon accumulations of wealth; estate planning from an individual viewpoint designed to create, maintain, and distribute the maximum estate possible. PREREQUISITE: FIR 3011 or permission of the instructor.

6310. Real Estate Law. (3). This course covers law and legal instruments as applied to real estate. It is designed to serve the needs of property owners and those engaged in the real estate business.

6340. Real Estate Appraisal. (3). Basic terminology, principles, procedures, and issues; nature of value, principles of value, appraisal process, market approach, cost approach, capitalization of income approach, gross rent multiplier approach, and appraisal reports.

6810. Property and Liability Insurance. (3). Forms and functions of fire, marine, automobile, general liability, and other types of property and liability insurance; emphasis on business and industrial applications.

6820. Life and Health Insurance. (3). Functions of life and health insurance; emphasis on economic security needs, human behavior, and problems related to death and dying; individual life, health, and annuity contracts and social insurance; concepts in risk selection and regulation.

6840. Multiple Line Insurance Company Operations. (3). Company and industry functions other than contracts, including rating, rate-making, reserves, auditing, underwriting, reinsurance, claims production engineering, and governmental supervision.

6860. Employee Benefit Programs. (3). Analysis of life, health, and pension benefit programs from viewpoint of benefit planner; topics include reasons for providing such programs, alternate methods for providing benefits, and broadly designing specifications for benefits.

6880. Risk Management Finance. (3). Integrating financial theory into practice of risk management for the firm; quantitative tools to carry out risk management process by developing spreadsheets to measure expected loss, determine appropriate risk handling methods, and analyze risk financing arrangements. PREREQUISITES: FIR 7050 or equivalent.

7040. Business Environment and the Law. (3). (7011). Legal procedure and the law of contract, sales, negotiable instruments, creditor's rights, agency, business organizations, and property will be considered; business environmental aspects of court decisions and administrative agencies respecting the regulation of business, taxation, antitrust law, labor law, consumer and environmental protection laws.

7050. Financial and Legal Concepts for Business. (3). Business finance and legal, social, and political environment of business; prerequisite for MBA Core II. **PREREQUISITE:** ACCT 7000 or equivalent.

7301. Contemporary Real Estate Theory and Practices. (3). Overview of significant topics in real estate finance, investments, and valuation; lecture and group discussion of key issues in real estate theory and practice.

7302. The Decision Process in the Development of Commercial and Industrial Real Estate. (3). Analysis of methodologies and market strategies in the evaluation of investments in commercial and industrial land development; identification, conceptualization, and execution of action programs associated with developing successful real estate projects, industrial parks, warehouse-distribution centers, and related land uses.

7320. Financing Real Estate Transactions. (3). Economic, institutional, and legal issues associated with real estate finance; emphasis on investor and developer financing, and secondary mortgage market.

7350. Real Estate Investment Analysis. (3). Analytical tools, concepts, and decision rules for real estate asset acquisition and disposition; ownership forms, tax structuring, cash flow forecasting, risk analysis, and decision making.

7737. Business Legal Environment. (1.5-3.0). General overview of several legal subjects that executives are likely to confront; presentation and discussion of relevant statutory, regulatory, and judicial pronouncements.

7910-8910. Problems in Finance, Insurance, and Real Estate. (2-4). Directed independent reading and research projects in the finance, insurance, or real estate areas selected by the student with approval of supervising faculty member and Faculty Director. Program of study must be approved prior to enrollment.

MANAGEMENT

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I. In the Area of Management, qualified students may work toward the Master of Science degree in Business Administration with a concentration in Management, the Master of Business Administration with a major in Business Administration and concentration in Management, or the PhD in Business Administration with a concentration in Management.

II. MS in Business Administration with Concentration in Management

A. Program Admission:

1. Satisfactory performance on the Graduate Management Admission Test (GMAT)
2. Satisfactory undergraduate grade point average

B. Concentration Prerequisites:

Alternate Core I or its equivalent, except ISDS 7080.

C. Concentration Requirements:

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written), including MGMT 7130. The required core courses in the Management concentration include:
MGMT 7421, Seminar in Organizational Behavior I
MGMT 7500, Seminar in Strategic Management
MGMT 7530, Seminar in the Development of Management Thought
2. Three semester hours in a collateral area approved by the student's advisor (nine if thesis is written).
3. The 33 credit hours required must be in courses designated for graduate students (7000 level or above).
4. Must pass a written or oral comprehensive examination.

III. MBA Program

See the beginning of this College section for admission, prerequisite, and program requirements. The management concentration consists of 9 hours of Management courses approved by the Area Master's Coordinator.

IV. PhD Program

See the beginning of the College section for admission, prerequisite, and program requirements.

Students are expected to be enrolled in the program on a full-time basis during their course work and one year during their dissertation stage. Doctoral candidates must register for dissertation credit each academic semester until the dissertation is completed in order to remain in active status. This commitment is expected to require three to four years of full-time study. Course work should be completed within two to three years, depending upon a student's prior academic background.

In addition to these requirements, PhD students are expected to develop a high level of skills in both research and teaching. Doctoral students are provided ample opportunity to develop these skills through class work, seminars, and assistantships.

MANAGEMENT (MGMT)

7030. Management and Organization. (3). (7000). Comprehensive analysis of concepts and applications required for effective performance of the manager's job in organizations with varied environments; management as a sub-function of the total organizational system interacting with objectives, planning, and control; organizational design and interpersonal relationships; nature of operations management.

7125. Organizational Behavior and the International Context. (3). Concepts and theories needed to understand the process of managing people, work groups, and organizations in a global environment; role of cultural differences relevant in international context. **PREREQUISITE:** Admission to IMBA concentration.

7130. Seminar in Organizations. (3). Micro and macro examination of factors affecting behavior within organizations; motivation, leadership, group dynamics, organizational design and development, and conflict management; consideration of behavior, structure, and processes of organizations. PREREQUISITE: MGMT 7030.

7160. Seminar in Business Policy. (3). (7410). The development of the top management viewpoint, the basic objective being to develop executive abilities and creative thinking; selected problem areas of modern business will be explored; alternative courses of action appraised, and decision-making ability developed. PREREQUISITE: 15 semester hours of CORE II courses.

7161. International Business Strategy (3). Business strategy from perspective of general manager in a multinational enterprise, promoting long-term success of the organization; heavy emphasis on case study; includes management of multinational enterprise, strategic thinking in a global context, internal firm analysis, industry and competitor analysis, and related international strategy issues. PREREQUISITES: Admission to IMBA concentration.

7170. International Management. (3). Foreign operations of American firms, impact of foreign competition on the domestic market, and management of multinational enterprises; identification, analysis, and resolution of managerial issues in multinational business operations. PREREQUISITE: MGMT 7030.

7173. Executive Communications (3). Theory of communication essential to management with written, oral, and interpersonal applications; use of case problems to develop effective, efficient, and ethical communication strategies; impact of communication technology; intercultural communication; collection, analysis, and organization of primary and secondary data, followed by written and oral presentations.

7210. Seminar in Industrial Relations. (3). An in-depth examination of selected problems in labor management relations; emphasis on an understanding of past practices as well as current trends that relate to present-day activities in industrial relations. PREREQUISITE: MGMT 7030.

7220-8220. Seminar in Human Resources Administration. (3). Problems and issues deriving from movements and trends in the management of human resources caused by changing laws, union activities, and the demands of our culture. The student is required to select one or more recent concepts or problems for intensive study and critical analysis. PREREQUISITE: MGMT 7030.

7230-8230. Collective Bargaining and Labor Arbitration. (3). Advanced analysis of labor law and collective bargaining theory on which labor arbitration is based; legal status and strategy and tactics of labor arbitration. PREREQUISITE: MGMT 7030.

7240-8240. Seminar in Human Resource Management and Careers. (3). Research theories of career stages, career and adult life transitions, work and family conflicts, and managing a diverse work force; international human resource issues and career issues. PREREQUISITE: MGMT 7030.

7260-8260. Seminar in Job Analysis, Selection, and Performance Appraisal. (3). Concepts and issues concerning understanding of jobs and performance of jobs; job analysis that creates foundation for selection and performance; use of job requirements for developing selection criteria and performance standards. PREREQUISITE: MGMT 7030.

7410. Intercultural Business Communication. (3). Intercultural communication skills needed to conduct business globally; emphasis on verbal and nonverbal communication skills, contrasting cultural values, universal systems, cultural variability, social skills, interpersonal and intergroup relationships, differences in temporal conception, and cultural shock.

7421-8421. Seminar in Organizational Behavior I. (3). Individual and group behavior within work organizations; emphasis on the study of behavioral science concepts and research and their applications to management of organizations. Individual studies will be pursued with group analysis and discussion at regular class meetings. PREREQUISITE: MGMT 7030.

7422-8422. Seminar in Organizational Theory. (3). Major historical and contemporary theories of organization; emphasis on study of organizational structures, principles, techniques, and processes as they relate to management of organizations. Individual studies will be

pursued with group analysis and discussion at regular class meetings. PREREQUISITE: MGMT 7030.

7423-8423. Seminar in Organizational Behavior II. (3). Employee-organization linkages, theories of human stress and cognition in organizations; cognitive processes in organizational contexts including social cognition, commitment, self-regulation, intrinsic-extrinsic rewards, coping with stressful organizational and life events, and determinants of pro-social behavior in work contexts. PREREQUISITE: MGMT 7030.

7500-8500. Seminar in Strategic Management. (3). Literature of strategic management, including contributions of other fields to strategic management. PREREQUISITE: MGMT 7030.

7504-8504. Seminar in International Business Strategy. (3). Nature and economic role of multinational corporations, including impact of legal, political, educational, sociological, and cultural variables upon performance and managerial activity of multinational firms. PREREQUISITE: MGMT 7160.

7506-8506. Seminar in Industry and Competitive Analysis. (3). Competitive environment of business organizations; emphasis on understanding industry structure and the positioning of firms in relation to major rivals. PREREQUISITE: MGMT 7160.

7508-8508. Seminar in Corporate Strategy. (3). Research literature on corporate-level strategy topics; corporate strategy as well as decision and implementation processes and problems; strategic issues of multibusiness firms. PREREQUISITE: MGMT 7160.

7510-8510. Seminar in Strategy and Planning Research. (3). Specialized areas in strategic management review of relevant literature and methodology; emphasis on problem determination, analysis and preparation of comprehensive reports and research proposals. PREREQUISITE: MGMT 7160.

7520-8520. Seminar in Organizational Change and Development. (3). Diagnosis of problems reducing organizational effectiveness, techniques for introducing and implementing change in organizations, theoretical basis of organizational development, and rationale for organizational development. PREREQUISITE: MGMT 7030.

7530-8530. Seminar in the Development of Management Thought. (3). Historical evolution of management thought designed to enable students to acquire a mastery of the literature in the field; emphasis on the work of pioneers and major contributions to the development of management thought.

7910-8910. Problems in Management. (1-6). Directed independent research projects in an area selected by the student with approval of the staff member supervising and permission of Faculty Director. Proposed plan of study must be approved prior to enrollment.

†7996. Thesis. (3-6). Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Faculty Director of Master's Programs.

8610. Seminar in Administrative Theory and Practice. (3). Critical appraisal of current theories in administration: responsibilities, roles, values, and underlying assumptions involved in administration; interaction of administrators, organizations, and environments; process involved in administering complex organizational systems with multiple goals and programs in varied environments.

8921. Seminar in Management Research. (3). Some of the statistical techniques available to the business researcher, including contingency tables, bivariate correlation analysis, regression analysis, ANOVA, discriminant analysis, and factor analysis; use of computerized statistical packages and interpretation of the results of these packages. PREREQUISITE: ISDS 3711 or 7020 or equivalent.

†Grades of S, U, or IP will be given.

BUSINESS EDUCATION (BUED)

7620-8620. Organization and Supervision of Vocational Business Education. (3). Office occupations programs with special emphasis on types of curriculums, production laboratories, and cooperative programs. Classroom supervision, physical layout, administration of programs, and utilization of block time.

7640-8640. Improvement of Instruction in Bookkeeping and General Business Subjects. (2-3). Critical evaluation of content, visual aids, methods, and testing in bookkeeping and general business subjects.

7655-8655. **Materials and Methods in Vocational Education. (3).** Instructional media and aids relating to vocational office education with emphasis on recent developments and research; particular emphasis on individual instruction techniques for the block-time approach to office education programs.

7660-8660. **Tests and Measurements in Business and Office Education. (3).** Standardized and published tests in business education, new trends in testing, application of sound testing theory and techniques to business education with special emphasis on evaluation of skill development, establishment of realistic office competencies, and evolution of grading standards.

7720-8720. **Guidance in Business and Office Education. (3).** History, principles, and philosophy of guidance in business education; relationships of business teacher to school guidance services; special attention directed to the development, scope, and responsibilities for vocational guidance with respect to selection and retention of vocational students.

MANAGEMENT INFORMATION SYSTEMS

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PRASHANT PALVIA,
PhD (1984), University of Minnesota [2003]
ROY WILLIAMS,
PhD (1967), University of Alabama [2001]

AFFILIATE MEMBER

- PAULA D. LADD, *Instructor*
EdD (1993), Memphis State University [2004]

I. In the Area of Management Information Systems qualified students may work toward the Master of Science degree in Business Administration with a concentration in Management Information Systems, a Master of Business Administration degree with a concentration in Management Information Systems, and the PhD in Business Administration with a concentration in Management Information Systems and Decision Sciences. The area offers courses in information systems, production operations management, and quantitative methods.

II. MS in Business Administration with Concentration in Management Information Systems

A. Program Admission

1. Satisfactory performance on the Graduate Management Admissions Test (GMAT).
2. Satisfactory undergraduate grade point average.

B. Concentration Prerequisites

For those students with a limited information systems background, the area requires ISDS 7060

C. Concentration Requirements

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written).
2. ISDS 7160, Computer Hardware and System Software; 7605, Business Database Systems; 7610, Systems Analysis and Design; 7615, Data Communications Systems and Network; and 7640, Information Systems Management and Planning as part of their degree program. Other courses can be selected from ISDS courses as approved by the Area Master's Coordinator.
3. Nine semester hours of electives will be selected with the approval of the Area Master's Coordinator.
4. At least 24 of the 33 credit hours required must be in courses designed primarily for graduate students (7000 level or above).
5. Must pass an oral comprehensive examination.

III. MBA Program

See the beginning of this College section for admission, prerequisite, and program requirements.

MIS concentration students may be required to take ISDS 7060 as a prerequisite course before starting their concentration course work. Electives in the concentration must be approved by the Area Master's Coordinator.

IV. PhD Program

See the beginning of this College section for admission, prerequisite, and program requirements. Additional guidelines defined by the area are available from the PhD program coordinator.

MANAGEMENT INFORMATION SYSTEMS (ISDS)

6000-09. **Topics in Teaching Methods in Information Technology. (3).** Selected topics of current interest in management information systems and computer software applications. Designed for teacher certification requirements. Topics are varied and announced in *Schedule of Classes*. NOTE: Restricted to teacher certification; not applicable toward business degree requirements. PREREQUISITE: Permission of instructor.

7060. **Program Development and File Structures. (3).** Programming principles, program logic development, internal data structures, and file organization; development of structures and computer programs using a modern programming language.

7160. **Computer Hardware and System Software. (3).** Introduction to the technology of computing; processor operation including fetch/execute, input/output, instruction types, interrupt handling, addressing schemes and multiprocessing; business systems software including operating systems from single-user single-task to multi-user multitask; major current operating systems.

7190. **Programming for Business. (3).** Fundamentals of programming for business projects, including Internet-based business applications and object-oriented programming languages. PREREQUISITE: ISDS 7060 or permission of instructor.

7465-8465. **Information Systems in Organizations. (3).** Fundamental concepts of systems and organizations; roles, types, and applications

of information systems (IS) in organizations; basic IS skills, techniques, and methodologies.

7470-9-8470-9. Topics in Information Systems and Decision Sciences. (1-3). Studies in ISDS as applied to solution of current operational problems in businesses. Topics change each semester as determined by relevant developments in decision sciences; consult the Schedule of Classes for current topic. (Maximum 9 hours credit.) PREREQUISITE: Permission of instructor.

7605-8605. Business Database Systems. (3). Management of database for effective support of management information systems. Topics include characteristics and design of schemas and subschemas for hierarchical, network, and relational data models. PREREQUISITE: ISDS 7060 or permission of instructor.

7610-8610. Systems Analysis and Design. (3). Comprehensive structured approach to application system development process; emphasis on requirements analysis, logical specifications, structured design, and implementation of information systems.

7615-8615. Data Communications Systems and Networks. (3). Introduction to concepts and terminology of data communication, network design, and distributed information systems; topics include equipment protocols and architectures, transmission alternatives, the communications environment, regulatory issues, and network pricing and management.

7620-8620. Decision Support Systems and Expert Systems. (3). Application of information systems tools to problem solving and decision making; emphasis on developing and applying concepts and technologies of decision support systems and expert systems. PREREQUISITES: ISDS 7605, 7120.

7630. Information Systems Projects. (3). Development or evaluation or both of specialized software product; field studies to collect and analyze data pertinent to significant information systems issues. PREREQUISITE: ISDS 7610.

7640-8640. Information Systems Management and Planning. (3). Information systems planning and management for the corporate executive and information systems manager; emphasis on information as a critical resource and its role in policy and long-range planning. COREQUISITES: ISDS 7605, 7610, 7615.

7650-8650. Global Information Technology and Systems Management. (3). Information technology's impact on globalizations of businesses; international IT environment; models and issues in international IS; planning and managing global systems; case studies and applications. PREREQUISITE: ISDS 7465 or permission of instructor.

7655-8655. Advanced Systems Analysis and Design. (3). Advanced concepts in information systems planning and development with focus on current information technologies and systems development practices that lead to timely delivery of effective information systems solutions; special attention on communication and interpersonal skills required for today's systems development activities. PREREQUISITE: ISDS 7610.

7660-8660. Advanced Networking and Database Management. (3). Integration of computer networking and database management concepts in a distributed information systems environment; topics include architecture, development, security, and management of distributed systems, client/server systems, distributed objects, the Internet, and intranets; current products, tools, and methodologies for developing and managing these systems. PREREQUISITES: ISDS 7605 and ISDS 7615.

7665-8665. Advanced Business Computing Environments. (3). Technical aspects and managerial implications of several state-of-the-art technologies with potential effects on competitive advantage, probability and cost, and personnel resources. PREREQUISITES: ISDS 7605, ISDS 7610, and ISDS 7615, or permission of the instructor.

7670-8670. Cryptography and Data Security. (3). (Same as COMP 7120-8120). Ancient and modern cryptology and ciphers; security problems in computing; basic encryption and decryption; public-key cryptography, notions of security in computing environments; encryption, protocols; security from programs, OS's, databases, PC's, networks and communication; legal, ethical, and human factors in computer security. PREREQUISITE: permission of instructor; MATH 2701 recommended.

7910-8910. Problems in Management Information Systems and Decision Sciences. (1-6). Directed independent research projects in an area selected by the student with approval of supervising faculty member and Faculty Director. Proposed plan of study must be approved prior to enrollment.

†7996. Thesis. (3-6).

8700-9. Topics in Information Systems. (1-3). In-depth study of selected current topics in MIS and related areas. Topics change each semester as determined by relevant developments; consult *Schedule of Classes* for current topic. (Maximum of 9 hours credit.) PREREQUISITE: Permission of instructor.

8710. Research Seminar in Information Systems I. (3). Scientific methodology of MIS research; MIS frameworks and theory of MIS; organization-critique and analyze foundational papers; in-depth study of researchable topics. PREREQUISITE: Permission of instructor.

8720. Research Seminar in Information Systems II. (3). Development of a research proposal; critique and evaluation related to research and the proposal. PREREQUISITE: ISDS 8710 or permission of instructor.

†Grades of S, U, or IP will be given.

MARKETING

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I. In the Area of Marketing, qualified students may work toward the Master of Science degree in Business Administration with a concentration in Marketing, the Master of Business Administration with a major in Business Administration and a concentration in Marketing, or the PhD with a major in Business Administration and a concentration in Marketing.

II. MS Degree In Business Administration Program
A. Concentration Prerequisites

Alternate Core I or its equivalent, except ISDS 7080.

B. Concentration in Marketing

1. Each candidate must complete a minimum of 33 semester hours of approved graduate courses. The 33 graduate credits include a minimum of 21 hours in the concentration (24 if a thesis is written).
2. The following courses must be included in the core of the concentration: MKTG 7140, Strategic Marketing; MKTG 7213, Research Methodology; MKTG 7510, Negotiation Strategies; MKTG 7511, Market Driven Quality.
3. Three semester hours in a collateral area approved by the student's advisor. This will include MGMT 7160 (Seminar in Business Policy) if an integrating business policy course has not been successfully completed.
4. At least 24 of the 33 credit hours required must be in courses designated primarily for graduate students (7000 level or above).
5. Must pass a written and/or oral examination.

III. MBA Program

See the beginning of this College section for admission, prerequisite, and program requirements.

IV. PhD Program

See the beginning of this College section for admission, prerequisite, and program requirements.

In addition to these requirements, the following are an integral part of the PhD program with a concentration in Marketing:

A. Foreign Language/Communication Skills: PhD students with a concentration in Marketing may select one of the following options to meet this requirement:

1. Demonstrate proficiency in a computer programming language, or complete satisfactorily (a grade B or better) one of the following: COMP 6001, Computer Programming; COMP 6002, Accelerated Computer Programming; or other courses as approved.
2. Demonstrate proficiency in a foreign language pertinent to the student's area of research interests.
3. Students whose native language is other than English should demonstrate proficiency in English with evidence beyond the TOEFL scores.

B. Teaching: Developing teaching skills is a major component of the PhD program. In the course of the program, doctoral students are provided with a balanced teaching and research assistantship. Student evaluations as well as faculty input (by observing doctoral students teach) are used to assess teaching skills. If teaching skills are found inadequate, the PhD candidate will be advised an appropriate course of action.

C. GPA Requirement: Marketing doctoral students are required to maintain a minimum of 3.50 GPA in the marketing courses.

MARKETING (MKTG)

7060. Marketing Management. (3). For graduate students with undergraduate degrees in fields other than business administration. Marketing management as it relates to product, price, place, and promotional activities in both profit and nonprofit organizations; external environment as it affects marketing.

7101. Global Marketing. (3). Overview of marketing principles and subsequent deconstruction of culture-bound thinking regarding marketing processes; development of marketing management skills through the examination of marketing content areas in concert with examination of culture and its influence on marketing. PREREQUISITE: Admission to IMBA concentration.

7140. Strategic Marketing. (3). Analytical approach to strategy formation as it relates to marketing management activities of business enterprise; focus on development of strategic framework for decision-making for both domestic and global organizations. PREREQUISITE: MKTG 7060 or equivalent.

7170. Multinational Marketing Seminar. (3). Emphasis on the cross-cultural aspects of multinational marketing through case studies and individual research; execution of marketing concepts and theories in different cultures and environments; similarities and differences of applications and results. PREREQUISITE: MKTG 7060 or permission of Faculty Director of Master's Programs.

7213. Research Methodology. (3). Nature and scope of research philosophy and methods in business; primary and secondary research procedures; emphasis on the preparation and presentation of independent research findings and on utilization of multivariate analysis techniques. PREREQUISITE: MKTG 7060 or permission of instructor.

7230-39-8230-39. Special Topics in Marketing. (3). Special study of problems in marketing. Topics areas change each semester as determined by relevant developments in marketing. Course may be

repeated once with a change in content. Current topic listed in *Schedule of Classes*. PREREQUISITE: MKTG 7060 or permission of Faculty Director of Master's Programs.

7251. Ethics in Business. (1.5). Ethical frameworks, theories, and definitions available for use in ethical business decision-making; legalization of business ethics, and processes involved in developing a business code of ethics; ability to recognize and identify ethical issues in business decision-making emphasized.

7260. Advanced Marketing Strategy. (1.5). In-depth analysis of marketing concepts and issues involved in formulating, implementing, and evaluating marketing strategies; topics include products and brand equity management, integrated marketing communication strategies, TQM, and relationship marketing philosophies; emphasis on processes required to implement and evaluate marketing strategies.

7270-8270. Strategic International Marketing. (3). Strategic decision-making in a global environment; strategic planning systems, including marketing information systems and analysis, leading to formulation of international marketing strategies. PREREQUISITE: MKTG 7170 or equivalent.

7510. Negotiation Strategies. (3). Application of negotiation strategies and tactics in a variety of business, non-profit, and political environments; emphasis on collaborative and competitive styles of negotiating. PREREQUISITE: MKTG 7060 or permission of Faculty Director of Master's Programs.

7511. Market Driven Quality. (3). Application of TQM principles and techniques in marketing operations; emphasis on measuring and analyzing quality from customer's perspective. PREREQUISITE: MKTG 7060 or permission of Faculty Director of Master's Programs.

7512. Corporate Macromarketing. (3). In-depth seminar on how corporations acquire and deploy political and interest group assets to control broad market forces; topics include corporate lobbying, PAC management, political intelligence-gathering operations, and their effectiveness toward accomplishing macromarketing objectives.

7910-8910. Problems in Marketing. (1-6). Directed independent research projects in an area selected by the student with the approval of the faculty member supervising and permission of the Faculty Director. Proposed plan of study must be approved prior to enrollment.

†7996. Thesis. (3-6).

8215. Ethical Criticism of Marketing Science. (3). Ethical analyses and critiques of scientific writing; deconstructive strategies of reading; emphasis on literary and rhetorical tactics employed in presentation of marketing theory.

8216. Measurement and Structural Equation Modeling. (3). Theoretical and methodological issues in research design, measurement, and method; development of measures of marketing constructs and empirical assessment of measurement properties; model development and testing to expand marketing theory; LISREL methodology to test measurement and structural models. PREREQUISITE: MKTG 8215 and PSYC 8302 or equivalent.

8217. Theory Construction and Evaluation. (3). Analyses of development of theory in marketing and management; critiques of dominant paradigms; examination of tenets of philosophy of science as they relate to theory generation and testing.

8222. Advanced Marketing Management Thought. (3). State-of-the-art thought in marketing management; analyses of foundations of marketing management theory; emphasis on developing new research approaches to improve marketing practice.

8223. Advanced Consumer Behavior. (3). Survey of theoretic and methodological contributions of consumer behavior research in areas of human information processing, search for information, complex decision-making, motivations, and attitudes; emphasis on tracing major research streams in the literature through examination of current journal articles; research paper required. PREREQUISITE: Permission of instructor.

8930. Advanced Research Methodology. (3). Detailed coverage of topics relevant to conducting research in behavioral sciences, particularly marketing, including sampling techniques; experimental design concepts (random and fixed effects models, blocking designs, multi-factor, use of repeated measures); development and evaluation of measurement instruments; application of multivariate techniques to marketing problems. PREREQUISITE: ISDS 7020 or equivalent.

†Grades of S, U, or IP will be given.

The College of Communication and Fine Arts

RICHARD R. RANTA, PhD,
Dean

MOIRA LOGAN, MFA
Director of Graduate Studies

GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration Within Major	Degree Offered
Art	Art	(1) Ceramics (2) Graphic Design (3) Interior Design (4) Painting (5) Printmaking/Photography (6) Sculpture	Master of Fine Arts (MFA)
	Art History	(1) Egyptian Art and Archaeology (2) General Art History	Master of Arts (MA)
Communication	Communication	(1) Communication (2) Film and Video Production	Master of Arts (MA)
	Communication Arts		Doctor of Philosophy (PhD)
Journalism	Journalism	(1) General Journalism (2) Journalism Administration	Master of Arts (MA)
Music	Music	(1) Composition (2) Jazz and Studio Music (3) Music Education (4) Music Education (5) Pedagogy (6) Performance (7) Orff-Schulwerk (8) Sacred	Master of Music (MMu)
		(1) Composition (2) Performance (3) Sacred Music (4) Music Education	Doctor of Musical Arts (DMA)
		Musicology	Doctor of Philosophy (PhD)
Theatre and Dance	Theatre		Master of Fine Arts (MFA)

Individual program requirements described in *The University of Memphis Graduate Bulletin*, 2001-2003, are subject to change. Please consult your department for changes that may occur before publication of the next issue of this *Bulletin*; or consult the Graduate School website at: <http://www.memphis.edu/gradschool> for annual catalog updates.

COMMUNICATION/FINE ARTS (CCFA)

6001. Arts in the Schools Institute. (1). Provides an opportunity to discover and explore impact of aesthetic education. Students view performances and exhibits and experience exploratory workshops by teaching artists.

ART

Room 201, Jones Hall
(901) 678-2216

JAMES E. JACKSON, MFA
Chair

MICHAEL SCHMIDT, MGD
Coordinator of Graduate Studies

E-mail: mschmidt@memphis.edu
www.people.memphis.edu/~artdept/artdept.html

MEMBERS

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PhD (1975), Washington University [2006]
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MFA (1974), Auburn University [2002]
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MFA (1980), Ohio State University [2002]
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PhD (1970), Columbia University [2004]

JAMES S. RAMSAY

PhD (1975), Tulane University [2004]

AFFILIATE MEMBER

MELINDA K. HARTWIG

PhD (2000), Institute of Fine Arts-New York University [2003]

I. The Department of Art offers the Master of Arts degree with a major in Art History and concentrations in (1) Egyptian Art and Archaeology, and (2) General Art History; and the Master of Fine Arts with a major in Art, with concentrations in Ceramics, Graphic Design, Interior Design, Painting, Printmaking/Photography, and Sculpture. The Department of Art is a fully accredited institutional member of the National Association of Schools of Art and Design.

II. MA Degree Program

A. Program Admission

1. Admission to the Graduate School. Applications received after April 1 cannot be guaranteed consideration for the Fall semester.
2. For the concentration in General Art History, an undergraduate course in each of the major areas of art history is desirable: ancient, medieval, renaissance, baroque, and modern. For the concentration in Egyptian Art and Archaeology, an undergraduate major in Egyptology, art history, anthropology, history, classical studies, or archaeology is desirable. If, after evaluation of the student's transcript, the art history faculty perceives a deficiency in these areas, the student may be required to successfully complete courses that will not count toward the Master of Arts degree.
3. A letter of intent, explaining the applicant's motivation and objectives in pursuing a graduate degree in art history.
4. A sample of undergraduate writing, preferably in art history.
5. Two letters of recommendation, at least one of which should be from a college faculty member who knows the student well.
6. For those seeking graduate assistantships, the deadline for submission of all materials is February 15.

B. Prerequisites for Admission to Degree Candidacy

The student shall apply for admission to degree candidacy upon the completion of 15 semester hours of graduate work. All candidacy requirements listed below must be satisfied before registering for more than 15 hours of coursework at the graduate level. To be approved for admission for candidacy, the student shall have:

1. A grade point average of at least 3.0 on a 4.0 scale.
2. Removed all departmental prerequisite requirements.
3. A planned degree program that which meets all departmental and graduate school requirements.
4. The qualifying examination in art history shall be successfully completed and identified deficiencies removed. For a concentration in General Art History, this test is an entry-level slide identification

examination covering key monuments of Western art from ancient through modern times. For a concentration in Egyptian Art and Archaeology, this test is an essay examination based on a reading list obtainable from the graduate advisor.

5. Knowledge of an appropriate foreign language must be demonstrated by the student. Generally speaking, advanced studies in art history require proficiency in at least one foreign language, depending upon the area of concentration selected by the student. Foreign language proficiency must be demonstrated by successfully passing an examination administered by the Department of Art; this examination should be taken during the first year of graduate study. This examination is set up so that each student is given a standard amount of time to translate in writing with the aid of a dictionary selected passages from scholarly articles in the student's field. For a concentration in Egyptian Art and Archeology, French or German is preferred.
6. The student must establish an overall history of satisfactory ratings in periodic review, a semi-annual evaluation of each student's general level of achievement by all area graduate faculty. Forms are available for perusal in the Art Department Office. Students with assistantships are required to take 12 hours each semester, 3 of which may be chosen from ART 7880 or 7881.

C. Program Requirements

1. A total of 30 semester hours including the thesis.
2. The completion of ARTH 6123 and 7130.
3. A minimum of 18 semester hours in art history (not including the required ARTH 6123, 7130 or any hours in ARTH 7996).
4. Twenty-one semester hours of 7000 level courses including no more than 3 credit hours for the thesis.
5. Up to 6 hours of elective credit outside the field of art history may be selected with the permission of the advisor.
6. The satisfactory completion of a comprehensive examination and an acceptable thesis, with presentation and defense.

III. MFA Degree Program

A. Program Admission

1. Portfolio. Approval by the area graduate committee of the applicant's creative work as specified below:
 - a. Graphic Design: 20-30 slides of original and/or printed works. Submission of original work may be requested.
 - b. Interior Design: 20-30 slides of drawings, perspectives, renderings, plans, elevations, etc.
 - c. Ceramics, Painting, Printmaking/Photography, and Sculpture: 20-30 slides of work mainly in the applicant's concentration area plus some slides of drawings and optional other media. Include additional views of 3D pieces. Submission of original work might be requested.
2. Letters of recommendation. Letters from two persons familiar with the applicant's creative activity but who are not members of the area graduate committee. If applying for a teaching assistantship, each recommendation should contain reference to the applicant's teaching ability. Graphic design applicants are required to submit official reference forms.
3. Statement. A brief, personal statement of professional ambitions, intended concentration area, other special creative interests, and outline of previous professional experience.
4. Entrance Examination. In general, a verbal score of 500 and a quantitative score of 450 or more on the GRE, or a score of 40 on the MAT, is desired for graphic design applicants.
5. Deadline. All University and Department of Art MFA application materials are due February 15 for Fall admission.
6. Address. Send slides, work, letters of recommendation, and statement to:
Coordinator of Graduate Studies
Department of Art
The University of Memphis
Memphis, Tennessee 38152
7. Deficiencies. Students may be admitted but required to complete undergraduate prerequisites or otherwise correct deficiencies.
8. Students with assistantships are required to take 12 hours each semester, 3 of which may be chosen from ART 7880 or 7881.

B. Program Prerequisites

1. Previous education and experience. Normally admission to the graduate program will require an undergraduate major in the applicant's concentration area. (See concentration areas listed above.) A baccalaureate degree from an accredited institution is required with not less than 70 semester hours of art of which 12 hours should be in art history and 18 hours (24 hours for Graphic Design and Interior Design) must be in the concentration studio courses. Exceptions to the above requirements will be considered, however, when the portfolio and professional experience warrant it.
2. Transfer credit. Any applicant who holds an MA degree in studio art from another institution may transfer up to a maximum of 30 semester hours credit in art earned for that degree to apply toward the MFA degree.

C. Prerequisites for Admission to Degree Candidacy

The student shall apply for admission to degree candidacy during the semester in which the student completes 30 hours of graduate work. To be approved for admission to candidacy, the student shall have:

1. A grade point average of at least 3.0 on a 4.0 scale.
2. Removed all departmental prerequisite requirements.

3. A planned degree program that meets all departmental and graduate school requirements.
4. The student must establish an overall history of satisfactory ratings in periodic review (a semi-annual evaluation of each student's general level of achievement by a committee of area graduate faculty) and be approved for candidacy by that committee.

D. Program Requirements

1. A total of 60 semester hours including a thesis of 6 semester hours in the student's area of concentration.
2. A total of 36 semester hours of studio art, excluding the thesis, with a minimum of 24 semester hours in the student's area of concentration.
3. Forty-two semester hours of 7000 level courses.
4. A total of 9 semester hours in art history.
5. A total of 9 semester hours of electives.
6. Students with a concentration in graphic design are required to take at least 12 semester hours of ART 7040 and 7240 combined.
7. Residency requirement for Graphic Design and Interior Design: The student must commit to full-time study for a minimum of two successive semesters after admission to either design concentration to fulfill the residency requirement.
8. Students from the concentrations of Ceramics, Painting, Photography, Printmaking, and/or Sculpture must enroll in Art 7651 (1 hour) when also enrolled in a 6000 or 7000 level studio course.
9. Satisfactory grade on a written comprehensive examination, with follow-up oral examination at option of examining committee.
10. Thesis (exhibition) to be approved by a faculty committee with the member under whom thesis was prepared as chair. For graphic design candidates, a written thesis accompanied by appropriate visual documentation is required.

ART (ART)

6010-19. Special Topics in Studio Art. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6020-29. Special Topics in Art Education. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6211. Writing and the Design Process. (3). Focus on synthesis of verbal and visual problem-solving methods and use of writing as an integral phase of design process. PREREQUISITES: ART 3213 and 3222 or permission of instructor.

6221. Graphic Design for Print Communications. (3). Practical problems in the areas of publication, information, corporate, and promotional design. PREREQUISITES: ART 3213 and 3222 or permission of instructor.

6222. Interactive Multimedia for Graphic Design. (3). Introduction to time-based, electronic media in graphics design, impact of electronic interface on visual communication; emphasis on visual design of narrative, commercial, editorial and/or educational multimedia presentations on computer. PREREQUISITES: ART 2223 and admission to Graphic Design concentration.

6223. Specialized Studies in Graphic Design. (3-12). Advanced instruction in either electronic imaging, typography, and publication design, 3-dimensional design, corporate and promotional design, or information graphics. May be repeated to a maximum of 12 hours when topics vary.

6224. History of Graphic Design. (3). Cultural, theoretical, and stylistic aspects of major movements in field of graphic design in Europe and America from the Industrial Revolution to present. PREREQUISITE: Admission to Graphic Design concentration.

6233. Design Practice Studio. (3). Faculty supervision on projects for institutional and corporate clients; development of publications, exhibits, signage and other graphics, and participation in professional design process from project inception to completion. May be repeated to a maximum of 12 hours with approval of the advisor.

6240. Interior Design Internship. (3). Supervised apprenticeship in interior design industry. Placement requires approval of interior design faculty. PREREQUISITE: ART 3234.

6321. Drawing and Painting I. (3). An advanced course in drawing and painting methods with emphasis on transparent watercolor.

6322. Drawing and Painting II. (3). A continuation of Art 6321 with attention given to various mixed media.

6331. Painting III. (3). Advanced problems in oil painting, presupposing that the student has mastered basic techniques and is ready for a more experimental approach to the subject.

6332. Painting IV. (3). A continuation of Art 6331 with emphasis on development of a personal style.

6351. Advanced Printmaking I. (3). Specialization in one or two printmaking media with emphasis on development of personal imagery and technical skills.

6352. Advanced Printmaking II. (3). Advanced work in one or two printmaking media with continued development of personal imagery and advanced technical skills.

6353. Computer Imaging in Printmaking and Photograph I. (3). Use of digital imaging in one of several output options including lithography, screen printing, etching, silver and non-silver photographic processes; emphasis on personal expression. PREREQUISITES: Computer course and either ART 2351 or 2701.

6354. Computer Imaging in Printmaking and Photography II. (1-3). Advanced project using digital imaging; proposal for study to be approved in advance; emphasis on personal expression. May be repeated to a maximum of 6 hours. PREREQUISITE: ART 6353 or permission of instructor.

6410. Art Education Independent Study. (1-3). Theoretical and pragmatic ideas relevant to teaching of art. May be repeated to a maximum of 6 hours.

6511. Sculpture IV. (3). Advanced work in various sculptural media.

6512. Sculpture V. (3). A continuation of ART 6511 with emphasis on personal expression.

6521. Ceramics III. (3). Introduction to pottery-making, including hand forming and production processes using clays, plaster, and cements.

6621. Workshop in Art I. (1-3). Specific art problems as they apply to individual student; emphasis on basic art concepts and creative experience.

6622. Workshop in Art II. (1-3). Continuation of ART 6621, providing study of problems appropriate to needs of individual student.

6641. Study and Travel in Art. (3 or 6). Travel to important art areas of the world with specialized study under direction of departmental faculty member. Research problem assigned and evaluated by major professor required.

6650. Professional Art Practices. (3). Development of skills needed for success as practicing professional artist, including portfolio preparation and presentation, marketing, contracts, copyrights, and alternative art careers.

6701. Color Photography. (3). Exploration of photographic perception in color. Survey of the history and aesthetics of color photography; techniques of color photography with emphasis on color printing. PREREQUISITE: ART 2702 or ART 6002 or permission of instructor.

6702. Photographic Materials and Processes. (3). Primarily an advanced technical course exploring the creative potential in various contemporary photographic materials, processes and techniques; emphasis on aesthetic application of those materials and techniques. PREREQUISITE: ART 2702 or ART 6002 or permission of instructor.

6703. Alternative Photographic Processes. (3). Creative potential of archaic and non-traditional photographic processes such as Cyanotype, Gum Bichromate, and Kwik-Print. PREREQUISITE: ART 2702 or permission of instructor.

6704. Photographic Lighting. (3). Advanced theory, technique, and equipment used by professional photographers for black and white and color; emphasis on aesthetic application in actual practice. PREREQUISITE: ART 2702 or permission of instructor.

7010-19-8010-19. Special Topics in Studio Art. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topic varies.

7020-29-8020-29. Special Topics in Art Education (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topic varies.

7040. Problems in Graphic Design: Methodology and Practice (3). Issues, theory, and methodology for graphic designers; research of

assigned topic, class discussions, and studio projects. May be repeated for maximum of 12 hours when topics vary.

7200. Photography Seminar. (3). Self-assigned visual/conceptual photographic problem in which journal is kept; group critiques and some seminar activities. May be repeated for a maximum of 6 hours.

7201-8201. Advanced Research Photography. (3). Independent work and research in photography. May be repeated for a maximum of 9 hours. **PREREQUISITE:** Permission of instructor.

7240. Visual Communication Research Topics. (3). Group discussion and criticism of individual study problems; emphasis on independent studio research projects as related to general topic in visual communication.

7330-8330. Studies in Two-Dimensional Media. (1-12). Exploration of an original visual arts idea in two-dimensional media. May be repeated for a maximum of 12 hours credit depending upon recommendation of advisor.

7420. Methods for K-12 Art Instruction. (2) Instructional planning, implementation, and evaluation applied to elementary and secondary school art programs.

7550-8550. Studies in Three-Dimensional Media. (1-12). Exploration of an original visual arts idea in three-dimensional media. May be repeated for a maximum of 12 hours credit depending upon recommendation of advisor.

7640. Studies in Computer Animation. (3). Advanced techniques and principles of visual communication in the video animation format. **PREREQUISITE:** permission of instructor.

†7651. Graduate Studio Seminar. (1). Student presentation and discussion of current studio work in ceramics, painting, photography, printmaking, and/or sculpture courses at the 6000 or 7000 level. May be repeated once per semester to a maximum of 12 hours.

7660-8660. Directed Individual Study. (1-12). Individual investigation of special research problems or projects. May be repeated for a maximum of 12 hours credit upon recommendation of advisor.

7710. Independent Studies in Black and White Photography. (3). Independent exploration of original black and white photographic art ideas and studio techniques. May be repeated for maximum of 6 hours upon recommendation of advisor.

7711. Advanced Photography Seminar. (3). (6711) Emphasis on finding a personal direction within the student's work, pursuing that direction, and discussing it in class critiques. **PREREQUISITE:** ART 7003 or permission of instructor.

7712. Photography Portfolio Seminar. (3). (6712) Student must produce a book of photographs or portfolio (bound by student) that represents a coherent, in-depth picture statement. **PREREQUISITE:** ART 7711.

7770. Studies in Mixed Media. (1-12). Explorations of an original visual arts idea in mixed media. May be repeated for a maximum of 12 hours credit upon recommendation of advisor.

†7880. Teaching Art for Graduate Assistants (1-3). Overview and practical demonstrations of the art of teaching Art. Required of all graduate teaching assistants. May be repeated for a maximum of 3 credits.

†7881. Workshop in Art for Graduate Assistants (1-3). Presentation of research methods and scholarly output by faculty, graduate students, and visiting scholars. May be repeated for a maximum of 3 credits.

†7996 Thesis. (1-6). Preparation and defense of a thesis prepared under direction of major professor. Studio Art thesis requires an exhibition.

† Grades of S, U, or IP will be given.

ART HISTORY (ARTH)

6030-39. Special Topics in Art History. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to a maximum of 9 hours when topic varies.

6111. Art and Archaeology of Egypt. (3). Pre-dynastic to Late Period.

6112. Egyptian Art and Archaeology in the Old and Middle Kingdoms. (3). Art, architecture, and archaeology, 3000-1500 BC.

6113. Egyptian Art and Archaeology in the New Kingdom and Late Period. (3). Art, architecture, and archaeology, 1500 BC. to 642 AD.

6121. Ancient Art of the Near East. (3). Architecture, sculpture, painting, and the minor arts in Mesopotamia, Anatolia, and Syria-Palestine.

6123. Greek Art. (3). Architecture, sculpture, and painting from the Bronze Age to the end of the Hellenistic period.

6124. Roman Art. (3). Architecture, sculpture, and painting from Etruscan Rome to the fall of the Empire.

6125. Art and Archaeology of Pompeii. (3). Pompeii's excavations, art, artifacts, and architecture in reconstructing ancient Roman daily life.

6129. Studies in Ancient and Medieval Architecture. (3). Selected topics comparing the architecture of ancient Egypt, the Classical world, and Medieval Europe.

6130. Art of the Medieval World. (3). Architecture, sculpture, and painting, including manuscript illumination, of the Middle Ages; includes Western European and Byzantine traditions.

6131. Art of the Early Middle Ages. (3). Advanced study of the architecture, sculpture, and painting of early medieval period.

6134. Art of the High Middle Ages (3). Advanced study of the architecture, sculpture, and painting, including manuscript illumination, stained glass, and ivories, of Romanesque and Gothic periods.

6141. Art of the Early Renaissance in Italy. (3). Survey of the architecture, sculpture, and painting of Italy, 1300-1510.

6142. Northern Renaissance Art. (3). Fifteenth century art in Northern Europe with emphasis on panel painting, manuscript illumination, and printmaking.

6143. Art of the High Renaissance in Italy. (3). Sixteenth century art in Italy, highlighting the works of Michelangelo, Raphael, Titian, and the Mannerists.

6146. Baroque Art. (3). Historical study of the architecture, sculpture, and painting produced in Europe during the seventeenth century.

6148. Neo-classicism and Romanticism. (3). Western European art, ca. 1760-1850, emphasizing painting, sculpture, and art theory. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6149. Realism and Impressionism. (3). Western European art, ca. 1850-1880, emphasizing painting, sculpture, and art theory. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6152. Early Modern Art. (3). Movements in Western art and art theory, 1880-1905, that are the foundation of 20th century modernism, especially Symbolism and Post-Impressionism. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6153. Cubism through Surrealism. (3). Modern European art movements from ca. 1905 to World War II; covers Cubism, Expressionism, Surrealism. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6155. High Modern Art. (3). American and European art and art theory, emphasizing the development of modernism. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6157. Contemporary Art. (3). Historical movements in art, 1968 to the present. **PREREQUISITE:** ARTH 2102 or permission of instructor.

6158. Modern Architecture. (3). 19th century styles, 20th century masters, contemporary developments in architecture, including historic preservation.

6160. Architecture and Nature. (3). Survey and analysis of spaces in variety of cultures from world history where relationship between the natural and the built environment is healthy.

6162. Latin American Art. (3). Hispanic arts of the Americas from 1500 to the present, considered in relation to Iberian and Indian traditions.

6163. Pre-Columbian Art. (3). A survey of the ancient arts of Mexico, Central America, and South America from c. 1000 BC. to European contact.

6166. Art of the United States. (3). (6167, 6168). American painting, sculpture, and art theory from Colonial period to 1945.

6181. Traditional Arts of Africa, Oceania, and North America. (3). Survey of arts created by Native Americans of US and Canada, peoples of sub-Saharan Africa, and Pacific islands, examined in relation to their cultural context and heritage.

6380. Museums in Society. (3). (Same as ANTH 6380). History of museums and how they function in society; development of major collections and roles of museums as centers of research, education, and interpreters of social values.

6381. Art Curatorial Techniques. (3). Concentrates on curatorial responsibilities and functions, receiving and shipping methods, registration, physical and environmental security, research, conservation, and a study of the art market and publications.

6382. Professional Practices in Museums. (3). (Same as ANTH 6382). Basic aspects of museum organization; roles of director and trustees, responsibilities of professional staff including registrars and curators, scope of museum education programs, presentations by museum professionals.

6384. Museum Internship. (3-6). Approved internship with cooperating museum or gallery, emphasizing curatorial program and/or operational duties. **PREREQUISITES:** Permission of the instructor and one of the following or the equivalent: ARTH 6380, 6381, 6382 or 6384. Repeatable for maximum of 6 hours.

6721. History of Photography I. (3). Historical and critical issues from photography's prehistory to World War I.

6722. History of Photography II. (3). Historical and critical issues in photography from World War I to present.

7030-39-8030-39. Special Topics in Art History. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated to maximum of 9 hours when topic varies.

7110. Advanced Individual Study in Art History. (3). Historical periods of art history with emphasis on individual research. May be repeated for credit when topic varies. **PREREQUISITE:** permission of instructor.

7115. Middle Egyptian I. (3). Grammar and translation of hieroglyphs.

7116. Middle Egyptian II. (3). Readings in hieroglyphs. **PREREQUISITE:** ARTH 7115 or equivalent.

7117. Middle Egyptian Literature. (3). Readings and translations of major literature of Ancient Egypt. **PREREQUISITE:** ARTH 7116 or equivalent.

7118. Middle Egyptian Historical Texts. (3). Readings and translations of ancient Egyptian works of history. **PREREQUISITE:** ARTH 7116 or equivalent.

7119. Late Egyptian. (3). Readings in literature and other texts. **PREREQUISITE:** ARTH 7116 or equivalent.

7120-8120. Medieval Art. (3-9). Selected areas or specific problems in Early Medieval, Romanesque, or Gothic Art. May be repeated upon recommendation of advisor.

7121-8121. Ancient Art. (3-9). Selected areas or specific problems in Egyptian, Near Eastern, Greek, or Roman Art. May be repeated upon recommendation of advisor.

7125. Egyptian Art and Archaeology. (3). Topics and problems in Egyptian art and archaeology.

7130-8130. Art History Methods and Professional Practice. (3). History of the discipline along with current research methods. Students develop research presentations in oral and written formats.

7140-8140. Renaissance Art. (3-9). Selected areas or specific problems of Renaissance Art. May be repeated upon recommendation of advisor.

7150-8150. Nineteenth Century Art. (3-9). Selected areas or specific problems in Nineteenth Century Art. May be repeated upon recommendation of advisor.

7152-8152. Twentieth Century Art. (3-9). Selected areas or specific problems in Twentieth Century Art. May be repeated upon recommendation of advisor.

7165-8165. American Art: Ancient to Modern. (3-9). Selected areas or specific problems in Pre-Columbian, North American Indian, Spanish Colonial, or American Art. May be repeated upon recommendation of advisor.

7660-8660. Directed Individual Study. (1-12). Individual investigation of special research problems or projects. May be repeated upon recommendation of advisor.

†7880-8880. Teaching Art History for Graduate Assistants (1-3). Overview and practical demonstrations of the art of teaching Art. Required of all graduate teaching assistants. May be repeated.

†7881-8881. Workshop in Art History for Graduate Assistants (1-3). Presentation of research methods and scholarly output by faculty, graduate students, and visiting scholars. May be repeated.

†7996 Thesis. (1-6). Preparation and defense of a thesis prepared under direction of major professor. Studio Art thesis requires an exhibition.

† Grades of S, U, or IP will be given.

COMMUNICATION

Room 143 Theatre and Communication Building

LAWRENCE R. FREY, PhD
Chair

JOHN A. CAMPBELL, PhD
Coordinator of Graduate Studies
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MEMBERS

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PhD (1969), The University of Wisconsin [2006]
JOHN A. CAMPBELL, *Professor*
PhD (1968), The University of Pittsburgh [2005]
LAWRENCE R. FREY, *Professor*
PhD (1979), The University of Kansas [2005]
M. ALLISON GRAHAM, *Professor*
PhD (1978), The University of Florida [2006]
KATHERINE G. HENDRIX, *Associate Professor*
PhD (1994), The University of Washington [2007]
JOANN KEYTON, *Professor*
PhD (1987), The Ohio State University [2005]
STEVEN J. ROSS, *Professor*
MA (1974), New York University [2002]

ASSOCIATE MEMBERS

- ROXANA L. GEE, *Associate Professor*
MA (1973), Memphis State University [2002]
WALTER G. KIRKPATRICK, *Associate Professor*
PhD (1974), The University of Iowa [2006]
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PhD (1993), Pennsylvania State University [2007]
ROBERT W. McDOWELL, *Associate Professor*
EdD (1991), Memphis State University [2004]
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PhD (1974), The University of Iowa [2005]
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PhD (1999), The University of Wisconsin-Madison [2006]
KEVIN B. WRIGHT, *Assistant Professor*
PhD (1999), University of Oklahoma [2006]

ADJUNCT MEMBER

- THOMAS DARWIN,
PhD (1995), The University of Texas-Austin
MICHAEL C. MCGEE,
PhD (1974), The University of Iowa [2003]

- I. The Department of Communication awards the Master of Arts degree with a major in Communication and concentrations in Communication or Film and Video Production. The department also awards the PhD degree with a major in Communication Arts.

II. MA Program

A Master's Degree in Communication from The University of Memphis prepares students for success in the many professional opportunities in this field and success in pursuing a doctoral degree in Communication. Students have a choice of two concentrations: communication or film and video production.

1. The concentration in communication provides students with fundamental grounding in communication theory and rhetorical theory. The program is then tailored to meet the needs and interests of individual students.
2. The concentration in film and video production combines technical instruction with courses in both motion picture and traditional communication studies to provide students with the tools and concepts necessary to function in the multifaceted world of audiovisual production. The approach to media practice is broad enough to address the needs of the independent artist, as well as those who seek to enter the industry.

A. Admissions Criteria

1. All students applying for admission are required to submit Graduate Record Examination (GRE) verbal and quantitative scores. In addition to meeting university admission requirements, the department uses the following criteria in consideration of applications:
 - a. in general, a verbal score of 500 and a quantitative score of 450 or more on the GRE;
 - b. an undergraduate GPA of 3.0, a GPA of 3.2 for the last 60 credit hours, or a GPA in the major of 3.25;
 - c. if English is a second language, a TOEFL score of 600 (or 250 on the computer-based TOEFL) and a TSE score of 280.

If the candidate does not meet the above criteria, but has an undergraduate GPA for the last 60 hours of at least 2.7 and a combined GRE of at least 900 (TOEFL and TSE scores remain the same), the application will be referred to the departmental graduate studies committee for consideration. In such cases, additional materials may be sought from the applicant. Candidates with a combined GRE below 900 or a GPA for the last 60 hours of undergraduate work below 2.7, or, if English is a second language, a TOEFL score below 600 or a TSE score below 280, will not be admitted.

B. Initial Graduate Advising

1. After being notified by the Graduate School of acceptance as a graduate student in the Department of Communication, the student will meet with the coordinator of graduate studies or the department chair, who will assign the student to a temporary advisor in an area relevant to the student's interest. That advisor will assist the student in registering for the first semester.
2. Before the first semester has been completed, or before 9 hours of part-time work have been completed, the student will form an MA committee consisting of at least two members of the department's graduate faculty. One of these two (who must be a full member of the graduate faculty), by request of the student and the consent of the faculty member, will serve as committee chair. These two members will assist the student in identifying a third member to be added before the completion of 18 hours.

C. Formation and Conduct of Master's Committee

1. Role and Duties of Chair and Committee Members: All decisions pertaining to a student's program should be approved by a consensus of the MA committee, including meeting to approve additions or changes to the plan of study and/or to approve the content of independent studies. Whether the student chooses to culminate his or her studies with a thesis, practicum, or special project, the whole committee must approve the proposal for this; the final result should be reviewed by them and found acceptable.

D. Program Requirements

1. Successful completion of a minimum of 36 hours of graduate courses, including thesis, practicum, or special project; 70% of the minimum must be at the 7000 level or above. Permission to pursue the thesis or practicum option must be obtained from the student's MA committee.
2. All students choosing the non-thesis option must complete three credits of COMM 7993 or COM 7994 Special Problems in their last semester.
3. All students must successfully complete the following core courses: COMM 7321 Communication Theory and COMM 7350 Rhetorical Theory.
4. All students with a concentration in Film and Video Production must take 3 credits of COMM 7892 Film and Video Production before beginning their practicum or final special project.
5. Up to 9 hours outside the department may be applied to the minimum hour requirement with the approval of the student's MA committee.
6. Up to 6 semester hours earned at another institution may be applied to the minimum hour requirement with the approval of the student's MA committee.

E. Comprehensive Examinations

All candidates must pass both a written and an oral comprehensive examination during or after their last semester of course-work.

1. A pass, or conditional pass, on the written examination is necessary for admission to the oral examination.
2. The quality of the comprehensive examination as a whole is determined at completion of the oral examination.

F. Graduate Assistantships

1. Graduate assistantships are available and are awarded on a competitive basis within the department. Assistantships are normally renewed for one year depending upon the performance of assistantship duties and the progress being made towards a degree.
2. All assistants must register for 12 hours of credit (or for 6 hours if enrolled in thesis or dissertation hours only). It is advised that 3 of these be chosen from COMM 7001, 7002, or 7003.

G. Theses, Practicums, and Special Projects

1. Students may choose either the thesis or non-thesis option. This decision should be made in consultation with their MA committee.
2. Thesis Option
 - a. A thesis or practicum (production thesis) of 3 to 6 semester hours may be presented as partial completion of degree requirements.
 - b. On completion of the thesis, the student must successfully complete an oral defense administered by the student's MA committee. The thesis must be acceptable to all members of the committee and recommended to the Graduate School after a successful defense.
 - c. Permission to pursue the practicum option will be granted by the student's MA committee on approval of a detailed proposal.
3. Non-Thesis Option
 - a. In lieu of a thesis, the student may choose to complete a special project under the supervision of a graduate faculty member. Registration for this special project must be approved by the student's MA committee and may not occur prior to the last semester of course-work.
 - b. The special project provides an opportunity for a student to demonstrate mastery of an area of concentration and an ability to work independently, as a special project is designed and carried out solely by the student. The project may take one of several forms: an original screenplay, a rhetorical essay, a quantitative or qualitative study, or a film or video production. On its completion, the special project should be presented to the student's MA committee for approval by all of its members.

H. Time Limitation

All requirements for the degree must be completed in 6 calendar years.

I. Departmental MA Guidelines

Additional details and information are available in the departmental MA Guidelines given to students following admission.

III. PhD Program**A. Program Admission**

The Department uses the following criteria in consideration of applications:

1. Fulfillment of university requirements for admission to the graduate school and a verbal score of 500 and a quantitative score of 450 or more on the GRE. If English is a second language, a TOEFL score of 600 (or 250 on the computer-based TOEFL) and a TSE of 280 are required.
2. MA or other advanced degree from an accredited institution. The MA thesis or other evidence of scholarly writing must be provided with the application.
3. Three letters of recommendation submitted by persons competent to judge the applicant's academic record and potential for advanced graduate work.
4. Transcript of prior academic work at the undergraduate and graduate levels. Individual copies should be sent to the Graduate School and to the department's coordinator of graduate studies. A minimum graduate GPA of 3.5 for the MA (on a 4-point scale) is expected.
5. A vitae/resume.
6. A statement of purpose that explains the applicant's reasons for seeking the doctoral degree from the Department of Communication at The University of Memphis.

B. Retention Requirements

A student will be retained continuously in the program within university time limits until completion of the degree, provided the following conditions are met.

1. It is expected that students maintain a GPA of 3.5 throughout the PhD program. Should the student's GPA fall below 3.5, 9 semester hours will be allowed to correct the deficiency. At the request of the student's PhD committee and at the discretion of the department chair and the graduate program committee this period may be extended 9 additional semester hours. The student must have obtained a GPA of 3.5 before registering for dissertation credit hours. A student who falls behind the satisfactory progress schedule may be put on probation. Any assistantship is forfeited if a student is put on probation.
2. After being notified by the Graduate School of acceptance as a graduate student in the department, the student will meet with the coordinator of graduate studies or the department chair, who will assign the student a temporary advisor in the student's area of interest. That advisor will assist the student in registering for the first semester.
3. Before registering for courses beyond 9 hours of study, the student will select a temporary PhD committee of at least 3 members. That committee will assist the student in registering for coursework beyond 9 hours.
4. Before registering for courses beyond 18 hours of study the student must form his or her PhD committee consisting of a chair and at least

three other members, of which one must be from outside the Department of Communication. Three members of the committee must be members of the Graduate Faculty and the chair must be a full member. See the Graduate Catalog for graduate faculty listings.

5. Students are expected to demonstrate satisfactory progress in fulfilling the graduation requirements.

C. Graduation Requirements

1. Students must earn at least 60 semester hours beyond the master's degree as approved by their PhD committee, including a minimum of 15 hours for combined major area paper and dissertation credits and a minimum of 6 hours taken from outside of the Department of Communication.
2. Research Tool or Analytic Specialty. Students must demonstrate mastery in a research tool or analytic specialty. Examples of research tools or specialties include facility in a foreign language, qualitative or quantitative methodologies, rhetorical criticism, knowledge of a body of communication law, or computer programs or techniques. A minimum of 9 hours of graduate work is necessary to meet this requirement.
3. Core Competencies. Students must have competency in three areas: Communication Theory, Media Theory, and Rhetorical Theory. These competencies can be satisfied academically in a variety of ways. If a student enters without having satisfied these competencies, he or she will be expected to make up these deficiencies as recommended by his or her committee.
4. Residency Requirements. A minimum of 2 consecutive semesters (Fall/Spring or Spring/Fall) in residence (with a course load of 9 hours per semester) beyond the master's degree must be completed prior to registering for dissertation credit. The summer session will not count as one of the required semesters.
5. Comprehensive examination. The examination will consist of a written and an oral portion. At the completion of the students' course-work (at least 45 hours), the student shall take a comprehensive exam over the areas covered in the student's program. The content of the examination for each student will depend on the nature of the student's program and the areas of concentration. The precise distribution of the 10 hours of the written exam and the areas that it will cover will be determined by the student's PhD committee within the following parameters:
 - a. At least 2 hours of the written exam will be devoted to theoretical issues;
 - b. At least 2 hours to research tool or analytic specialty issues;
 - c. The remaining hours will be divided among themes pertinent to the student's specialization, including cognate areas of study; and
 - d. When appropriate, questions may be solicited from other faculty members to supplement those provided by the PhD committee members.

Preparing for the Comprehensive Examination. Prior to the comprehensive examination students will take 6 hours of COMM 8992 Major Area Paper. This independent investigation, approved in advance by the student's PhD committee, leads to the preparation of a publishable paper. This course is counted towards degree requirements. The paper produced in COMM 8992 is to be submitted to the PhD committee prior to the other written comprehensive exams. The comprehensive examination is taken during the semester in which the major area paper is completed or in a subsequent semester. If all the members of the student's PhD committee believe that the student has demonstrated the intended skills and outcomes for which the major area paper is designed (a publication, a prize awarded at a conference, etc), the committee may waive this requirement. That decision will be made by the committee during the last semester of the student's coursework. The comprehensive examination, which is both written and oral, is the primary basis on which the faculty of the department determine whether the student is ready to embark upon the program of research and writing culminating in the dissertation. The PhD committee administers the comprehensive examination. At the close of the oral portion, the PhD committee, after considering the quality of both oral and written responses, will determine the outcome. Students will not be allowed to take the comprehensive examination or submit a dissertation prospectus if they have any Incompletes outstanding in the approved program of study.

6. Dissertation Requirements
 - a. On successful completion of the comprehensive examination the student shall select a dissertation director and, in consultation with the director, invite three additional faculty members to serve as the students' dissertation committee. It is recommended that one member of the committee be from outside the discipline.
 - b. Dissertation Proposal Defense. The student shall submit a proposal for the dissertation to the dissertation committee and defend the proposal before the committee. To be considered as "making satisfactory progress," a candidate must have his/her prospectus approved within two semesters of completion of the comprehensive examination.
 - c. Dissertation Defense. The chair of the dissertation committee will circulate a complete draft of the dissertation to all committee members, who will be given the opportunity to provide feedback. If needed, the student will then write a revised dissertation, approved by the committee chair, and circulated to all committee members. This process will continue until a majority of the dissertation committee formally agrees that the dissertation is ready to be defended. At that time, the chair of the dissertation committee will schedule an oral

defense of the dissertation. On approval of all of the members of the dissertation committee, the dissertation will be submitted to the Graduate School for final approval and the degree awarded.

7. Departmental PhD Guidelines

Additional details and information are available in the departmental PhD Guidelines given to students after admission into the program.

COMMUNICATION (COMM)

6011. Communication in Organizations. (3). Communication systems and problems in contemporary organizations with emphasis on the role of communication in corporate culture and in organizational change.

6012. Health Communication. (3). Examination of the role of communication in health care; application of communication theory and practice to the health care context from provider-patient interaction to cultural influences on health.

6013. Communication in Political Campaigning. (3). Forms and effects of communication between politicians and constituencies with emphasis on campaign rhetoric via the mass media, debates, model speeches, etc.

6210-19. Special Topics in Communication Studies. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6220-29. Special Topics in Film. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6341. Interpersonal Communication. (3). Theory, research, and practice regarding dyadic communication.

6342. Small Group Communication. (3). Advanced study of group communication theory emphasizing group membership, member perceptions, group development, group process, and group outcomes.

6360. Great American Speeches. (3). Examination of notable speeches from before the founding of the republic through the twentieth century; religious and secular foundations of American rhetoric; tensions of inclusion and exclusion in development of national self-understanding.

6373. Interracial Communication. (3). The social problems encountered in communication between blacks and whites; readings, discussion, and field study on how prejudice, stereotypes, and self-concepts can affect communication; exploration of rhetorical methods to minimize these problems.

6375. Intercultural Communication. (3). Special problems encountered in communication between people of different cultural backgrounds; focus on understanding communicative interaction between and among people with different national/cultural backgrounds and functioning more effectively in multicultural settings.

†6802. Internship. (1-3). Field studies in communication; supervised practical work with government institutions, private business, film company, or broadcast and electronic media firm; written analysis of experience required. May be repeated for a maximum of 6 semester hours. PREREQUISITE: Permission of instructor.

6810. Broadcast Regulation and Program Policy. (3). Effects of FCC and other governmental regulations on broadcasting and electronic media management and operations; licensing, renewals, content control, politics, and copyright.

6811. Radio and Television Programming. (3). Analysis of individual program formats (with examples); use of this information along with ratings and other audience research to study the design of program schedules.

6812. Communications Law in the Performing Arts. (3). Artist, performer, management contractual relationships; acquisition, copyright, and disposition of literary and audio-visual properties; production and distribution agreements; advertising law and other matters for TV, motion picture, radio, and stage businesses.

6822. Audio Production for Broadcasting and Film. (3). Intermediate principles and practices of audio (recording, editing, mixing, and design) with emphasis on film and video production. PREREQUISITE: Minimum grade of "C" in COMM 3824 or permission of instructor.

6824. Cinematography/Videography. (3). Art of visual interpretation with a strong concentration in the theory and techniques of lighting. Experience with professional film and video cameras and lighting equipment. PREREQUISITE: COMM 3824.

6825. Editing and Post-Production. (3). Aesthetics of continuity development in variety of editing styles; editing techniques and post-production procedures for both video and double system film. PREREQUISITE: Minimum grade of "C" in COMM 3824 or permission of instructor.

6831. Broadcast and Cable Sales and Advertising. (3). Relation of broadcasting and cable sales and advertising to networks, station representatives, and salespeople; role of sponsors, agencies, and allied groups.

6841. Television Workshop. (4). Production of television programming for local cablecasting. May be repeated for a maximum of 8 semester hours; repetition will not result in change of any grade previously given. PREREQUISITE: Permission of instructor.

6842. Television Studio Production II. (4). Advanced training in TV studio/multiple camera techniques. Extensive production work. PREREQUISITE: COMM 3842.

6850. Film History I. (3). (6852). Historical survey of motion pictures from medium's pre-history to 1940. Emphasis on narrative film.

6851. Film History II. (3). Historical survey of major movements, genres, and themes in narrative film from 1940 to 1960.

6853. Documentary Form in Film. (3). Development of non-fiction film as rhetorical and expressive form. Analysis of individual films, genres, and filmmakers.

6856. Women and Film. (3). Women as performers, viewers, subjects, and creators in American and international film.

6857. History of Broadcast and Electronic Media. (3). Comprehensive history of broadcast and electronic media as developed from 1895 to present.

6858. Contemporary Cinema. (3). Major themes and styles in international and American narrative film from 1960 to present.

6871. Broadcast and Cable Management. (3). Theories of management; special problems and situations confronting managers of broadcast and cable outlets, including personnel, engineering operations, programming, and sales functions. PREREQUISITE: COMM 3800.

6891. Producing and Directing for Film and Video. (3). Research and script preparation; budgeting and production management; working with actors and crew. PREREQUISITE: Minimum grade of C in COMM 3824 or permission of instructor.

6960. Documentary Writing. (3). Writing for nonfiction media.

6970. Screenwriting. (3). Writing for fiction film and television. Basic dramatic theory, narrative structure, characterization, dialogue, adaptation and unique demands of audio/visual media.

†7001-8001. Teaching Techniques for Graduate Assistants. (1-3). Overview and practical demonstrations of the art of teaching Oral Communication. May be repeated for a maximum of 3 credit hours. PREREQUISITE: Graduate teaching assistant status in Department of Communication.

†7002-8002. Graduate Symposium I. (3). An orientation to the department, the study of communication, and the communication profession. May be repeated. PREREQUISITE: Graduate Teaching Assistant in Department of Communication.

†7003-8003. Graduate Symposium II. (3). Participation and discussion of scholarly research by graduate students and faculty. Review and discussion of issues central to the graduate program. May be repeated. PREREQUISITE: Graduate Teaching Assistant in Department of Communication.

7013-8013. Seminar in Political Communication. (3). Study of research pertaining to variables in political communication, such as debates, commercials, consultants, ethics, coverage. May be repeated for a maximum of 9 hours credit.

7210-19-8210-19. Special Topics in Communication Studies. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

7321-8321. Communication Theory. (3). Theories, models, and approaches to study of communication.

7330-8330. Social Science Research in Communication. (3). An introduction to the research process and an overview of social science research methodology in the study of communication.

7331-8331. Seminar in Communication Theory. (3). Specific topics, issues, and research in communication theory. May be repeated for a maximum of 9 hours credit.

7332-8332. Seminar in Communication Research. (3). Examination of particular methodologies in communication research. Content will vary in response to current issues in the field. Repeatable for 9 hours. PREREQUISITE: COMM 7330-8330.

7350-8350. Rhetorical Theory. (3). Development of rhetorical theory from c. 500 BC to present. PREREQUISITE: Permission of instructor for non-degree-seeking students.

7362-8362. Seminar in Public Address. (3). Intensive study of selected topics in the analysis and criticism of public arguments; emphasis on cross-cultural comparison of arguments and appeal in common rhetorical situations. May be repeated for a maximum of 6 hours credit.

7369-8369. Seminar in Organizational Communications. (3). Selected variables of organizational communication with emphasis on methods of analyzing and auditing communication within the organizational setting. May be repeated for a maximum of 9 hours credit.

7371-8371. Rhetorical Criticism. (3). An examination of the nature, questions, perspectives, and explanatory aims of rhetorical criticism. PREREQUISITE: Permission of instructor for non-degree-seeking students.

7374-8374. Independent Studies in Communication Arts. (1-3). Independent research in areas of special interest including rhetoric, radio, television, and film. Repeatable to 9 hours. PREREQUISITE: Permission of the instructor.

7432-8432. Quantitative Research Methods. (3). Survey of quantitative research in communication; practical experience in collecting and analyzing quantitative information. PREREQUISITE: COMM 7330-8330.

7434-8434. Qualitative Research Methods. (3). Survey of qualitative research in communication. Practical experience in collecting and analyzing qualitative information. PREREQUISITE: COMM 7330-8330.

7450-8450. Seminar in Interpersonal Communication. (3). Selected examination of theory about one-on-one interactions, related research, and application of that theory and research in diverse interpersonal contexts. May be repeated for a maximum of 9 hours credit.

7460-8460. Seminar in Group Communication. (3). Examination of the theoretical and methodological approaches to the study of group communication focusing on both the task and relational orientations of group interaction. May be repeated for a maximum of 9 hours credit.

7472-8472. Organizational Culture and Change. (3). Examination of the wide variety of theoretical and methodological approaches to culture, identification of types of organizational cultures, and tracking cultural evolution.

7474-8474. Supervisory Communication and Leadership. (3). Examination of the communication issues, strategies, and concepts involved in supervisory communication effectiveness. Review of current research regarding supervision, leadership, and teams.

7612-8612. Classical Rhetorical Theory. (3). Examines the development of Greco-Roman rhetorical theory from the Sophists through Quintilian and Augustine.

7614-8614. Modern Rhetorical Theory. (3). Examines central documents in the western rhetorical tradition from the fifteenth through the nineteenth centuries.

7616-8616. Contemporary Rhetorical Theory. (3). Examines the relationship between rhetorical theory and contemporary philosophy, especially poststructuralism, neo-pragmatism, and hermeneutics.

7632-8632. Seminar in Rhetorical Criticism. (3). Examination of the principal modes of contemporary rhetorical analysis such as Neoclassical, Burkean, Feminist, Cultural/Critical, and Poststructuralist. Repeatable for 9 hours.

7802-8802. Seminar in Film Criticism. (3). Intensive study of selected periods, genres, or filmmakers with emphasis on independent research project. Repeatable for 9 hours.

7804-8804. Seminar in Media Theory and Criticism. (3). Major critical approaches to media form and content; emphasis on film and television. Repeatable for 6 hours.

7806-8806. Seminar: Trends in Mass Communication. (3). Critical issue or issues facing communications today. Topics will vary each time offered. May be repeated for a maximum of 6 credits.

7807-8807. Seminar: Mass Communication Theory. (3). Selected concepts of mass communication with special attention to variables, media, and tools in mass communication research.

7808-8808. Seminar: Mass Communication and Society. (3). Interrelationships between mass communications, the individual, and society. Topics will vary each time offered. May be repeated for a maximum of 6 credits.

7809-8809. Seminar in Communication History. (3). Selected topics in history of communication, including public address, film, broadcasting, and electronic media. Repeatable for 6 hours.

7811-8811. Seminar in Telecommunications Policy. (3). Social, economic, and legal issues relating to use and governance policy-making institutions to mediate between conflicting international, national, and industry interests.

7892. Film and Video Production. (1-3). Workshop for film and video production. Students write, produce, direct, or assume crew responsibilities on productions. May be repeated for a maximum of 6 credits. See departmental guidelines for independent production requirements and procedures. **PREREQUISITE:** COMM 3824 or permission of instructor.

7991-8991. Seminar in Comparative Media. (3). To demonstrate through intensive analysis what happens to the form and content of a creative work in its various adaptations: novel, condensation, stage, movie, and television. Open to all Theatre and Dance, Communication, and English majors.

7993-8993. Special Problems. (1-3). Directed individual investigation of special research projects not included in thesis.

†7994-8994. Special Problems. (1-3). (Same as Above).

†7995-8995. Production Practicum. (3-6). Creative performance or production project suitable for public presentation and/or a practical application. Project to be determined in consultation with and directed by the student's supervisory committee.

†7996. Thesis. (1-6).

8992. Major Area Paper. (3-6). Preparation of a manuscript-length paper as determined by the student's advisory committee. The topic will be approved by the committee. The paper may be a literature review, original research study, or other scholarly work of a quality similar to published research literature.

†9000. Dissertation. (1-9). For students who have passed their comprehensive exam and have an approved prospectus to write their dissertation under the direction of their advisor.

† Grades of S, U, or IP will be given.

JOURNALISM

Room 300, Meeman Journalism Building

JAMES REDMOND, PhD,
Chair

M. DAVID ARANT, PhD
Coordinator of Graduate Studies
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MEMBERS

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ADJUNCT MEMBERS

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DEBORAH M. CLUBB,

MSJ (1977), Northwestern University [2002]

I. The Department of Journalism offers the Master of Arts degree with a major in Journalism and concentrations in Journalism Administration and General Journalism. In addition to the residential master's program, the Department offers its MA in Journalism online to distant students.

II. MA Degree Program

Students in the MA program may take courses in advertising, journalism, and public relations in keeping with their needs and interest. This program is designed for those who anticipate completing doctoral programs, for practicing professionals, and for those who are planning career changes. Students should consult with the coordinator of graduate studies and with faculty advisors in designing individual curricula.

A. Program Admission and Prerequisites

Applicants to the program are evaluated as they apply and may be admitted for the fall or spring semesters or for the summer session. All applicants must meet admission requirements of the Graduate School plus the following admission standards set by the Journalism Department:

1. An undergraduate grade-point average of at least 3.0 (A=4.0) in all course work. Exceptions to this requirement will be considered.
2. An undergraduate degree in journalism from an accredited postsecondary institution or another degree from an accredited institution plus significant professional experience in advertising, broadcasting, journalism, or public relations.

Candidates who fail to meet prerequisites may be admitted as special undergraduates or non-degree students and are required to complete undergraduate coursework to remedy their deficiencies.

Journalism master's students may apply up to nine hours of graduate credits earned while in non-degree seeking status at the University of Memphis.

3. A score of 480 on the Verbal component and a score of 420 on the Quantitative component of the Graduate Record Examination (GRE), or a score of 40 on the Miller Analogies Test (MAT). Applicants with lower test scores will be considered.

4. A statement of 500 to 1000 words indicating the academic program for which the individual is applying and specifying his or her career goals.

B. Program Requirements

1. Credit hours. Students may complete their degrees with (a) a minimum of 30 hours of graduate credit including a thesis, or (b) a minimum of 33 hours of graduate credit including a professional project, or (c) a minimum of 36 hours of graduate credit. All options require a comprehensive examination covering four core courses and culminating presentations to three-person faculty committees. All courses taken for graduate credit must be approved by the graduate faculty of the department. Student work must be completed at a level of performance satisfactory to the graduate faculty. Students must complete all journalism courses with a grade of 3.0 or better. Course work taken outside the department (other than as specified in the Journalism Administration concentration) must be approved by the student's advisor. Students in General Journalism are required to take two courses (6 hours) outside the department.

Students with graduate credit earned at another institution may petition to have it applied toward their degree requirements at The University of Memphis. Such credit is not transferred automatically and must be approved by faculty in the student's concentration. A maximum of nine semester hours, including up to six hours of journalism credits, earned at another regionally accredited university may be applied toward the master's degree requirements at The University of Memphis.

2. Comprehensive Examination. Students must satisfactorily complete comprehensive examinations covering the four common core courses

of JOUR 7025, 7050, 7075, and 7100. This examination must be taken within 12 months of completion of the last of these courses.

3. Master's Thesis. Students who anticipate continuing with doctoral study should complete an independent research project culminating in a master's thesis. On completion of a thesis, a student will take an oral examination that assesses the thesis and the student's broader awareness of theoretical and empirical issues in his or her field.
4. Professional Projects (JOUR 7998, Professional Project). Practicing professionals seeking master's degrees to enhance career progress may complete a professional project under the direction of faculty committees. On completion of a professional project, a student will take an oral examination that assesses the project and the student's broader awareness of theoretical and empirical issues in his or her field.
5. Required Courses. All students are required to complete a 12-hour core consisting of JOUR 7025, 7050, 7075, and 7100 plus additional course work approved by the student's advisor to meet specified credit hour totals. Students who choose a concentration in Journalism Administration must complete the following courses in the Fogelman College of Business and Economics: ACCT 7000, MGMT 7030, MKTG 7060, and either FIR 7050 or ECON 7010. No more than three hours in either JOUR 7700 or JOUR 7800, but not both, may be applied to the degree. All requirements for the degree must be completed in eight years. Courses older than eight years will not be allowed as credit toward the master's degree.
6. Each student is responsible for obtaining a copy of the Master of Arts in Journalism Student Handbook from the coordinator of graduate studies or the department office. The document answers most questions about the program.

JOURNALISM (JOUR)

6120. Reporting Public Issues. (3). Analyzing and writing news reports about government, courts, energy, economy, taxes, education, environment, medicine, and science; emphasis on relationship between current issues and public's need to be informed; and on topics vital to large, urban society. PREREQUISITE: JOUR 3120 or 3625.

6124. Computer-Assisted Reporting. (3). Advanced use of computer technology and investigative techniques to access, analyze, and develop database information in combination with traditional news reporting. PREREQUISITE: JOUR 3120 or 3625.

6214. Magazine Editing & Production. (3). (3120). Editing and production problems of magazines; emphasis on business, industrial, and home periodicals; headline and title writing; pictorial copy layout; staff organization; production processes. PREREQUISITE: JOUR 3900 or permission of instructor.

6328. Strategic Advertising Campaigns. (3). Development of creative strategy and its execution to include layouts, audio tapes, slide shows, storyboards, and sales promotion application. NOTE: Offered only in spring semester. PREREQUISITES: JOUR 3322, 3324, 3345, 4327.

6440. Public Relations Campaigns. (3). Application of theory, research data, and problem-solving techniques in development of comprehensive public relations strategies. PREREQUISITE: JOUR 4420.

6500. Mass Media Web Site Management. (3). Creation of journalism/mass media organization World Wide Web sites including conceptualization, layout, and integration of traditional news and information products; theoretical and ethical issues involving mass media publishing content on the Internet, including concepts of product placement and audience engagement with news, public relations, and advertising. PREREQUISITE: JOUR 3900 or permission of instructor.

6655. Seminar in Electronic Media. (3). Issues and problems confronting electronic media; analysis of various professional, societal, and economic forces that affect broadcast journalism.

6702. Current Issues in Journalism. (3). Advanced study of recent, critical problems faced by the mass media with exploration of complexities that cause them.

6708. Mass Media Professional Ethics. (3). Classical approaches to ethics presented with their application to the day-to-day considerations that journalism, public relations, and advertising professionals must face in working with employers, local publics, and a larger society dependent on a free flow of accurate information.

6712. Mass Media and Cultures. (3). International communication, flow of news and propaganda; role in national development and international affairs; growth and impact of global journalism, television news, advertising, and public relations; comparison of media systems.

6714. Information Retrieval and Analysis. (3). Using computers to develop and execute search strategies in multiple on-line databases. Critical analysis and archiving of collected information.

6800-09. Special Topics in Journalism. (3). Intensive study of a single critical issue or current topic. Topics may vary. May be repeated for a maximum of 6 hours.

6900. Desktop Presentation. (3). Using computers to learn processes, software, and production design concepts involved in multimedia, primarily designed for computer-to-computer communication; digital editing of still images, off-line video editing, animation, and production techniques for assembling all into single CD or video to convey advertising, public relations, or news-editorial concepts. PREREQUISITE: JOUR 3900 or permission of instructor.

7000. Media Writing and Editing. (3). Information gathering, writing, and editing skills necessary for any field within journalism and mass communication through lectures, discussions, and exercises that meld theory to technique; both laboratory writing and field assignments.

†7001-8001. Workshop in Journalism for Graduate Assistants. (1-3). Presentation of research methods and scholarly work by faculty, graduate students, and visiting scholars. Required of all graduate assistants. May be repeated for a maximum of 3 hours.

7015. Precision Language for Journalists. (3). Designed to help students become more precise as well as versatile writers by diagnosing their writing, polishing their grammar and editing skills, and teaching them to write with clarity, cohesiveness, and conciseness.

7025-8025. Law of Mass Communication. (3). Laws and regulations affecting mass media with attention to social and political forces that shape the law; exploration of First Amendment theories as well as the constitutional framework of the legal system; in-depth legal research in the student's selected area of interest.

7050-8050. Mass Communication Theories. (3). Key concepts and development of theories offered to explain operation and effects of mass communication media; multidiscipline overview of theories dealing with advertising, broadcasting, print, and public relations messages, media, and effects.

7075-8075. Mass Communication Research Methods. (3). Familiarization with content analysis, survey research, data analysis, and field studies as practiced by reporters, editors, and public relations decision makers; modern research techniques and class project using computer analysis.

7100-8100. Mass Communication Administration Methods. (3). Administration of advertising, news, and public relations enterprises; systems analysis exploration of classic management principles in organization, assessment of environment, planning and strategy, budgeting, staffing, decision-making, and other functions in advertising, news, and public relations.

7200-09-8200-09. Special Topics in Journalism. (1-3). Topics are varied and announced in *Schedule of Classes*.

7300-8300. Mass Communication Literature. (3). Review of scholarly publications, books, periodicals, and databases in advertising, public relations, and news media.

7320-8320. Mass Media and Diversity. (3). Research and analysis of the relationship among mass media, women, and minorities.

7340-8340. Advanced Advertising Practices. (3). Planning and design of advertising campaigns and tactics with primary emphasis on implementation.

7350-8350. Advanced News Practices. (3). Recent research findings in news reporting, writing and editing principles; practical experience in preparing finished news reports suitable for publication or dissemination in professional-level mass medium.

7375-8375. Integrated Communication. (3). Integration of advertising, direct mail, public relations, and other strategic communication tools to produce a singular message that reaches every target audience segment; emphasis on application of theories to a particular case study.

7400. Public Relations Principles and Issues. (3). Contemporary social trends, public relations roles and responsibilities, and applicable public relations theory.

7420. Public Relations Programming and Production. (3). Design and implementation of public relations programs in response to contemporary issues.

7440. Organizational Public Relations. (3). How organizations maintain rapport with their publics and the mass media by effectively communicating long-range goals.

7450-8450. Public Relations Management. (3). Development and management of public relations practice, department, or consultancy through study of planning and decision-making techniques; aspects of public relations practice that differ significantly from other enterprises; development of proposals and presentations; and management of financial and human resources.

7700-8700. Directed Individual Research. (3). Projects on non-thesis related topics of special interest to the student ending in a completed research article or report. **PREREQUISITE:** Permission of instructor.

7800-8800. Directed Individual Readings. (3). Preparation of literature review for master's thesis with extensive bodies of writing in topic areas. May be taken to prepare scholarly papers on subjects of individual interest. **PREREQUISITE:** Permission of instructor.

†7998. Professional Project. (1-6). Completion of supervised professional project in student's area of expertise. Repeatable to maximum of 6 hours; only 3 hours applicable to major.

†7999. Thesis. (1-6).

†Grades of S, U, or IP will be given.

RUDI E. SCHEIDT SCHOOL OF MUSIC

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Interim Director

KENNETH KREITNER, PhD
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MM (1979), Northwestern University [2005]
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- JEFF CLINE
MM (1995), Northwestern University [2003]
- MARK ENSLEY
MFA (1991), University of Wisconsin-Madison [2003]
- NICHOLAS V. HOLLAND, III
MM (1993), East Carolina University [2004]

I. The Rudi E. Scheidt School of Music is a member of the National Association of Schools of Music. It offers three graduate degrees in music: Master of Music, Doctor of Musical Arts, and Doctor of Philosophy.

A. Prerequisites

- All requirements for admission to the Graduate School must be met before a student's application will be considered by the School of Music. See the Admissions section of this catalog for further information.
- Admission to graduate study in the School of Music is competitive and will be based on a student's full admissions material, including official transcript(s), letters of recommendation, standardized test scores if available, and the results of his or her audition, writing sample, and so forth (see below). See the departmental admissions packet for deadlines.
- A baccalaureate degree in music or the equivalent is normally expected before entrance into a graduate program in music. Students with degrees in other disciplines will be considered for admission but may be required to make up undergraduate credits in music history, music theory, and/or other subjects as necessary for their intended concentration.
- Auditions and Work Samples
 - Students in performance, sacred music, or music education must perform a successful audition for the music faculty in the appropriate area.
 - Students in composition must submit acceptable compositions in various media to the composition faculty.
 - Students in music education must submit a written philosophy of music education.
 - Students in musicology must submit an acceptable writing sample (not necessarily on a musical subject) to the appropriate faculty.
- Students planning a concentration in jazz and studio music must achieve a satisfactory grade on the proficiency examination administered by that division. Students showing deficiencies may be placed in appropriate undergraduate courses. Students planning to take applied jazz instruction at the 7000 level must perform an audition of classical and jazz literature in several styles. Students planning to take jazz composition/arranging must submit tapes and scores of several works for various media.
- All students entering master's or doctoral programs in music education are expected to hold a current teaching license in music; all

requirements for licensure must be met before admission to graduate study.

7. All students entering a master's or doctoral program in the School of Music, regardless of concentration, must take the music history and theory proficiency examinations given in the days preceding registration in each term. Students who pass these respective examinations may take any history or theory course they wish; those who fail are required either to retake and pass the test(s) or to take remedial coursework promptly. In the case of the theory requirement, such coursework ordinarily consists of MUTC 6202; in that of history, it is some combination of MUHL 3301, 3302, and/or 3303.
8. Students taking courses in vocal pedagogy or vocal performance must satisfactorily pass the proficiency examination in diction administered by the voice faculty. Students who fail this test must take MUSE 4211 and/or 4212 at the first opportunity.

II. Master's Degree Programs

The Rudi E. Scheidt School of Music offers the Master of Music degree with concentrations in performance, sacred music, musicology, pedagogy, Orff-Schulwerk, music education, jazz and studio music, and composition.

A. Prerequisites to Master's Degree Candidacy

1. The student shall declare a concentration area at the time of application. Admission to graduate standing in that concentration, and any subsequent changes in concentration, must be approved by the appropriate area coordinator.
2. Evidence of keyboard proficiency is required of students in the music education, composition, and voice performance concentrations.

B. Prerequisites for Graduation

1. A student with a concentration in performance must successfully complete a hearing, normally before the area faculty, for the public recital and shall perform that recital to their satisfaction. Advisors may recommend outstanding performers for the Performer's Certificate at any time after the recital by submitting a recording of the recital to the Honors and Awards Committee of the School of Music.
2. All students must pass a comprehensive examination administered by the School of Music.
3. A student of whom a thesis is required shall submit a thesis acceptable to his or her advisor and committee and to the Graduate School.
4. Certain concentrations have language requirements; see the descriptions of the individual programs below.
Complete details of this outline may be obtained by writing the Associate Director for Graduate Studies in Music, Rudi E. Scheidt School of Music.

III. MMu Degree Program

A. Core Requirements (10 Hours)

1. Ensemble (1)
2. 9 hours of coursework in Music History and/or Music Theory and Bibliography. Any graduate music theory or history course may be used for this requirement with the exception of individual studies, pedagogy, or repertory courses.

B. Program Requirements (22-26 Hours)

The individual program of study is determined as a cooperative effort between the student and his or her advisor.

1. Performance (bass, bassoon, cello, clarinet, conducting, euphonium, flute, guitar, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, viola da gamba, violin, voice)
 - a. Applied Music (individual lessons) (14; 12 for voice)
 - b. Ensemble (1)
 - c. Music Electives (6)
 - d. Recital MUAP 7999 (3)
NB: for students studying voice, a minimum of 6 undergraduate hours in each of French, German, and Italian and two semesters of Song Repertory are required. If such coursework has not been fulfilled during a student's undergraduate degree, it can be taken during his or her time in the Graduate School.
2. Sacred Music
 - a. Applied Music (individual lessons in organ or voice) (8)
 - b. Sacred Music (9)
 - c. Ensemble (1)
 - d. Electives (3)
 - e. Recital MUAP 7999 (3)
3. Music History
 - a. Music History (12)
 - b. Minor Concentration in Music (6)
 - c. Ensemble (1)
 - d. Thesis MUHL 7999 or Lecture Recital MUAP 7899 (3)
 - e. Reading knowledge of one foreign language, preferably German, must be demonstrated before graduation.
 - f. Students taking the option of Lecture Recital must have a minimum of one semester of individual lessons at the 6000 level.
4. Pedagogy
 - a. Applied Music (individual lessons) (6-8)
 - b. Pedagogical Area (14-17)
 - c. Ensemble, or elective for students studying piano (1)

5. Orff-Schulwerk

- a. Level I Orff-Schulwerk MUSE 6802 (3)
- b. Level II Orff-Schulwerk MUSE 7103 (3)
- c. Level III Orff-Schulwerk MUSE 7104 (3)
- d. Master Class in Orff-Schulwerk MUSE 7214 (2)
- e. Ensembles (1)
- f. Electives (9)

6. Music Education

- a. History and Philosophy of Music Education MUSE 7402 (3)
- b. Survey of Research in Music Education MUSE 7403 (3)
- c. Music Education Electives (12)
- d. Applied Music (individual lessons) (2)
- e. Ensemble (1)
- f. Thesis MUSE 7996 (3)

7. Jazz and Studio Music

- a. Advanced Improvisatory Practices and Materials MUTC 7010 (3)
- b. History of Jazz MUHL 6806 (3)
- c. Jazz Pedagogy MUSE 6512 (3)
- d. Analytical Studies of Jazz Styles MUTC 7104 (3)
- e. Lessons in performance, composition, and/or arranging (8)
- f. Jazz Ensemble MUAP 7107 or Jazz Combo MUAP 7202 (3)
- g. Recital MUAP 7996, Practicum MUID 7699, or Thesis MUHL 7996 (3)

8. Composition

- a. Composition MUTC 7501 (14)
- b. Composition Practicum MUSE 7599 (3)
- c. Ensemble (1)
- d. Music Electives (6)

IV. Doctoral Degree Programs

The Rudi E. Scheidt School of Music offers the Doctor of Musical Arts degree with concentrations in performance, composition, sacred music, and music education. It also offers the Doctor of Philosophy degree with a concentration in musicology.

A. Admission to Doctoral Programs

All auditions, writing or composition samples, proficiency examinations, etc., described above in "I.A. Prerequisites" are required for entry into doctoral and master's programs alike; standards for the former are naturally higher than for the latter. Completion of a master's degree in music at the University of Memphis does not guarantee admission to a doctoral program.

B. Prerequisites for Doctoral Degree Candidacy

1. Before declaring degree candidacy, doctoral students must have completed 40 hours of graduate coursework.
2. Doctoral candidates who did not have a course in Bibliography and Research Methods at the master's level must complete MUHL 8400 during doctoral study. (Students in the PhD in music education may substitute MUSE 8403 for this requirement.)
3. Students must fulfill all university requirements, including residency for two consecutive semesters.
4. Students must successfully pass written and oral comprehensive examinations. For students in the DMA programs, these will consist of written examinations in music history and theory, followed by an oral examination by the doctoral committee; for those in the PhD programs, comprehensive examinations will be tailored to the individual student's course of study and dissertation interest.
5. Unless otherwise specified, all doctoral programs have language requirements which may be satisfied by (a) successful completion of a foreign-language course at the 1102 level (or the equivalent) or higher, taken at an accredited institution within five years of entry into the doctoral program, or while the student is enrolled in the Graduate School; (b) successful completion of a foreign-language examination administered by the School of Music; or (c) successful completion of a course in computer programming language at the 6000 level or higher. Students who are native speakers of a foreign language may have this requirement waived for that language.
6. Upon completion of these prerequisites, the student may file the candidacy forms and work with his or her committee on the proposal(s) for the dissertation or dissertation equivalent.

C. The Dissertation or Dissertation Equivalent

1. The PhD program requires a doctoral dissertation on an approved scholarly or experimental topic. For most DMA programs, the conventional dissertation is replaced by a dissertation equivalent appropriate to the individual disciplines.
2. Submission of the Dissertation: All regulations of the Graduate School regarding the mechanics and submission of doctoral dissertations apply to dissertations and dissertation equivalents in music. All degree recitals are taped and a copy of the tape placed on file in the Music Library.
3. Dissertation defense: every doctoral candidate must defend his or her dissertation or dissertation equivalent before the doctoral committee. Other faculty may attend the dissertation defense or be invited to participate. At the conclusion of the defense, the results will be conveyed in writing by the major professor to the Associate Director for Graduate Studies.

4. Graduation: The timetable and requirements for graduation are set by the Graduate School and published elsewhere in this Graduate Catalog.

D. Post-Master's Assistantships

Study at the post-master's level involves considerable sacrifice of time and often earning power to fulfill the requirement of most institutions that a full year must be spent in residence before a degree can be awarded. By awarding assistantships at the post-master's level, the Rudi E. Scheidt School of Music seeks to attract the very best combination of talent and scholarship available and to encourage as many talented, mature students as possible to continue learning by providing basic subsistence during the year of residence. Normally, stipends to post-master's students will be for one to three years.

V. DMA Degree Program

The DMA degree is structured to allow maximum flexibility in designing a program around each student's background and needs. Although the distribution of hours is firm, program requirements are to be regarded as general rather than fixed. The student's preparation, experience, and stated goals are carefully evaluated before an individually selected course of study is prescribed.

A. Concentration Area Requirements

1. **Performance** (bass, bassoon, cello, clarinet, conducting, euphonium, flute, guitar, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, viola da gamba, violin, voice) (63 hours)
 - a. 24 hours of private lessons on the major instrument
 - b. 18 hours of a minor area in music
 - c. 12 hours of electives, to be chosen with the approval of the student's advisor
 - d. 9 hours Dissertation Equivalent: Three public recitals, of repertory approved by the doctoral committee, are required. Each must be preceded by a formal hearing before the student's doctoral committee, two to four weeks before the recital itself. A formal research document on a topic approved by the committee will also be submitted to the Graduate School after the final defense; music covered by this document will also appear on one of the recitals. (Piano majors will be required to perform a chamber music recital in addition to the three solo recitals, and a standard concerto either in one of the solo recitals or on another occasion. These requirements are part of the applied music hours.)
2. **Composition** (60 hours)
 - a. 3 hours of MUTC 8599 Composition Practicum
 - b. 18 hours of MUTC 8501 Composition
 - c. 18 hours of a minor area in music
 - d. 12 hours of electives, to be chosen with the approval of the student's advisor
 - e. 9 hours of MUTC 8999 Dissertation: The dissertation will consist of a work of significant scope.
3. **Sacred Music** (60 hours)
 - a. 9 hours of MUSA 8801 Studies in Sacred Music (topics to vary)
 - b. 18 hours in voice, vocal pedagogy, conducting, choral techniques, organ, sacred music, or Orff-Schulwerk
 - c. 12 hours of music minor, in one area not part of the music core
 - d. 12 hours of electives, to be chosen with the approval of the student's advisor
 - e. 9 hours Dissertation Equivalent: The final project may take different forms and will reflect the minor as well as the sacred music major. It could be a conventional dissertation, or a series of recitals plus a doctoral research document, or a composition, or some combination.
4. **Music Education** (60-62 hours)
 - a. MUSE 8402 History and Philosophy of Music Education
 - b. 9 further hours of course work in music education
 - c. 6 hours of course work in music history
 - d. 6 hours of course work in music theory
 - e. EDPR 8541 Statistical Methods Applied to Education I
 - f. 3 hours further course work in professional education
 - g. 4 hours individual study in applied music
 - h. 2 hours ensemble
 - i. 14-16 hours general electives
 - j. 10 hours MUSE 9000 Dissertation

VI. PhD Degree Program (60 hours)

The PhD degree is structured to allow maximum flexibility in designing a program around each student's background and needs. Although the distribution of hours is firm, program requirements are to be regarded as general rather than fixed. The student's preparation, experience, and stated goals are carefully evaluated before an individually selected course of study is prescribed.

A. Musicology Concentration Requirements

Students will follow either:

1. A program providing a broad background in historical musicology culminating in a dissertation on a musicological topic agreed upon by the student and the doctoral committee.
 - a. A minimum of eleven courses (33 hours) in the major area, including:

- 1) MUHL 8400 Bibliography and Research Methods
 - 2) MUHL 8531 Early Musical Notations
 - 3) MUHL 8505 Seminar in Musicology
 - b. 18 hours of graduate study outside musicology. At least 9 of these hours must be in an approved humanistic discipline outside music.
 - c. MUHL 9000 Dissertation (9 hours total)
 - d. A reading knowledge of two foreign languages, ordinarily including German, must be demonstrated before graduation.
- OR
2. A program providing a broad background in ethnomusicology:
 - a. A minimum of eleven courses in the major area (33 hours), including:
 - 1) MUHL 6800 World Musical Styles
 - 2) MUHL 6801 American Folk and Popular Music
 - 3) MUHL 7400/8400 Bibliography and Research Methods
 - 4) MUHL 7800/8800 Field Methods in Ethnomusicology
 - 5) MUHL 8801 Ethnomusicology
 - 6) MUHL 8805 Transcription and Analysis in Ethnomusicology
 - 7) MUHL 8806 Seminar in Southern Regional Music
 - b. Two of the remaining four courses in music shall have a major focus on Southern regional music.
 - c. 18 hours of graduate study outside musicology. At least 9 of these hours must be in an approved humanistic discipline outside music.
 - d. MUHL 9000 Dissertation (9 hours total)
 - e. A reading knowledge of two foreign languages, ordinarily including German, must be demonstrated before graduation.

MUSIC INDUSTRY (MUID)

6260-69. Special Topics in Commercial Music. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated with change of topics.

6603. Copyright and Licensing. (3). Detailed examination of intellectual property rights as they relate to the commercial music industry; examination of publishing and its role in the control and exploitation of the package of rights in music property; includes: publishing activities, performing rights organizations, catalog sales and acquisitions, publisher/songwriter relations, and royalty accounting; emphasis on practical applications. **PREREQUISITE:** MUID 2201, 3602.

7699. Media Music Production Practicum. (3).

7800-8800. Technology Applications in Music. (3). Advanced instruction in current technology assisting the composer, teacher, and practical musician.

MUSIC THEORY AND COMPOSITION (MUTC)

6107. Composer's Workshop: Jazz/Commercial. (3). Composition/arranging for various sizes of instrumental and vocal groups with emphasis on commercial writing; projects in record copies, horn and string tracks, background vocals, instrumental accompaniment for vocal solos, jingles, and radio station ID's. (*Offered spring semester of odd years.*) **PREREQUISITES:** MUTC 2101, 2502, or permission of instructor.

6202. Seminar in Music Theory and Analysis. (3). Theory, counterpoint, and analysis of literature; contrapuntal and harmonic techniques; research; theoretical problems from a pedagogical point of view; writing in strict and free styles. **NOTE:** Recommended as a review course for graduate students. May not be counted toward any degree program in music except the MMu and PhD in Musicology with permission of the major advisor. (*Offered fall semester.*)

6260-69. Special Topics in Theory and Composition. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated with a change in topic.

6501. Composition. (3). Composition in varied forms for large and small ensembles and solo instruments; analysis of contemporary works and practical application of techniques. May be repeated for additional credit. **NOTE:** Composition is taught as applied music. Students receive the equivalent of one hour lesson per week. The fee for this instruction is \$100.00 per semester.

6504. Introduction to Film and Studio Scoring. (3). Basic problems of writing music for film and video, including commercial and industrial productions, features, selection of appropriate styles, creating master music list, writing from cue sheet; introduction to editing room equipment, including conversion of film frames to video, SMPTE time code and synchronization equipment, MIDI sequence scoring from

digital audio workstation. (*Offered alternate years.*) PREREQUISITES: MUTC 2511, MUTC 3501, and either MUID 3801 or MUTC 4511 or 4505, or permission of instructor.

7010. Advanced Improvisatory Practices and Materials. (3). Advanced improvisational techniques, including motivic development, pan-diatonic, panchromatic, and free improvisation; practices involving pentatonic, quartal, cluster, and polychordal compositions; survey and analysis of published improvisation teaching materials. PREREQUISITE: Two semesters (or equivalent) of undergraduate improvisation, permission of instructor.

7101-8101. Pedagogy of Theory. (3). A practical course in classroom procedure; demonstrations by students and instructor in teaching the rudiments, elementary and advanced theory, various styles of counterpoint, and ear training; various theoretical systems; bibliography.

7104. Analytical Studies in Jazz Styles. (3). Directed study in selected areas of jazz historical styles; transcription and analysis of selected recordings and scores from specific jazz and popular styles; critical aural study of stylistic interpretation of major jazz big bands and combos of selected style periods. PREREQUISITE: Permission of instructor.

7201-8201. Theory I. (3). Analysis of style features of the music of the eleventh century through the Baroque period.

7202-8202. Theory II. (3). Analysis of style features of the music of the Classic, Romantic, Impressionistic, and Contemporary periods.

7203-8203. Studies in Music Theory. (3). Independent investigation of a research procedure or directed reading in selected areas of music theory chosen with consultation of instructor. May be repeated for credit when topic varies. PREREQUISITE: Permission of instructor.

7204-8204. History of Music Theory. (3). Development of theoretical concepts of music found in treatises and textbooks, dating from 550 BC to 1937 AD.

7260-89-8260-89. Special Topics in Theory and Composition. (1-3). Selected topics in theory or composition. May be repeated with change of topics.

7501-8501. Composition. (2, 3 or 6). Free composition in all forms. Applicants to this course are required to submit original works in various forms and media as proof of maturity and technical preparation for graduate work. The course may be repeated with the instructor's permission for successive semesters. NOTE: Composition is taught as applied music. Students receive the equivalent of two half-hour lessons per week. The fee for this instruction is \$100.00 per semester.

7502-8502. Electronic Compositional Techniques. (3). Emphasis on tape manipulation, synthesizer operation, and recording techniques in association with individual compositional projects. May be repeated for credit with permission of instructor. The fee for this instruction is \$100.00 per semester.

†7599-8599. Composition Practicum. (3-6).

7801-8801. Analytical Techniques I. (3). Techniques of analysis of styles and structure of music focusing on the Middle Ages/Renaissance and tonal periods through the nineteenth century; modal analysis, hexachordal concepts, use of LaRue techniques, introduction to Schenkerian principles, and the rhythmic theories of Lester.

7802-8802. Analytical Techniques II. (3). A continuation of Analytic Techniques I, including a more detailed look at Schenkerian techniques of analysis; extension of Schenker principles through Schacter, Salzer, and others; principles of atonal analysis using Forte set theory, historical theories from Hindemith, Messiaen, and others.

†7996. Thesis. (1-3).

†9000. Dissertation. (1-9).

† Grades of S, U, or IP will be given.

MUSIC HISTORY AND LITERATURE (MUHL)

6001. Piano Repertory. (2). Survey of stringed keyboard repertory from Bach and his contemporaries to the present; representative works analyzed in regard to historical, stylistic, formal, and aesthetic features. (*Offered fall semester.*)

6002. Song Repertory I. (3). Survey of solo literature from Italian, British Isles, and German schools of song. (*Offered alternate years.*)

6003. Song Repertory II. (3). Survey of solo literature from French, Russian and Slavic, Scandinavian, and American schools of song. (*Offered alternate years.*)

6005. History and Literature of the Organ. (3). Literature for the organ and its effect on and interaction with organ design.

6006. Guitar Literature I. (3). Basic repertoire from the Medieval period through the Pre-Classical period.

6007. Guitar Literature II. (3). Basic repertoire from the Classical period to the present.

6008. The Symphony. (3). A survey of the development of the symphony from the eighteenth century to the present with a focus on important composers and works, including discussion of orchestration and form, aesthetics, and performance practice.

6009. Choral Literature I. (3). Survey of choral repertoires from Gregorian chant to 1700; contemporary performance practices; techniques of performing early choral music with modern mixed choirs.

6010. Choral Literature II. (3). Survey of choral repertoires from 1700 to the present; contemporary performance practices; problems of modern performance.

6011. String Quartet Literature. (3). History of the string quartet; survey of its music from Haydn to the present; problems of performance.

6012. History of Chamber Music for Wind Instruments. (3). History of chamber music for brass and woodwind instruments from the medieval through the modernist periods; instruments, types of ensembles, musical sources, notation, repertory, and performance practice.

6013. Women and Music. (3). An investigation of the roles women have played throughout the history of Western art music, and the music they have composed, performed, and inspired.

6014. Chamber Music for Piano. (3). Study of the development of works for piano and one other instrument, including piano trios, piano quartets, and piano quintets; stylistic analyses of works from classic, romantic, and twentieth-century repertory.

6020. Solo Brass Literature. (3). Examination of the solo literature for brass instruments from the seventeenth century to the present.

6260-69. Special Topics in Music History. (1-3). Selected topics in Music History. May be repeated with change in topic.

6407. The Opera and the Music Drama. (3). A survey of the opera before Richard Wagner; study of Wagner's music dramas and opera of his contemporaries; dramatic and musical significance of each phase of the development of the two forms. PREREQUISITE: Permission of the instructor.

6500. String Repertory. (3). Histories, tests, methods, periodicals, orchestral studies, and solo and ensemble literature.

6800. World Musical Styles. (3). Musical styles and the role of music performance in preliterate and folk societies throughout the world. (*Offered spring semester.*)

6801. American Folk and Popular Music. (3). Folk and popular elements in American music; role of mass media, especially the phonograph record, in utilizing and changing folk music; historical development and interrelationships between various musical styles ranging from nineteenth century minstrelsy to the roots of rock and roll; emphasis on southern Anglo-American and Afro-American folk and popular musical styles. (*Offered fall semester.*)

6804. Blues. (3). Stylistic development of blues music from its beginnings; relationships to African-American and American culture and history. (*Offered fall semester.*)

6805. History of Rock and Roll. (3). Stylistic origins and development of rock and roll music from its beginning to the present.

6806. History of Jazz. (3). Stylistic origins and development of jazz; interaction of jazz and Western classical music styles.

6807. Memphis Music. (3). Distinctive forms of folk and popular music in Memphis in the twentieth century; relationships to the history, culture, and social patterns of the city and mid-south region; folk music background, blues, jazz, country music, gospel music, and rock and roll emphasized. (*Offered spring semester.*)

7260-69-8260-69. Special Topics in Music History. (1-3). Selected topics in Music History. May be repeated with change of topic.

7400-8400. Bibliography and Research Methods. (3). Survey of the fields of historical and systematic investigation in music with bibliographical studies and research analysis. Required of all students who intend to write a thesis.

7401-7406-8401-8406. Style Periods in Music History. (3). Music and historical data from various periods of Western musical history.

7401-8401. Medieval Music.

7402-8402. Renaissance Music.

7403-8403. Baroque Music.

7404-8404. Classic Music.

7405-8405. 20th Century Music.

7406-8406. Nineteenth-Century Music.

7408-8408. Individual Research in Musicology. (1-3). Individual research on a selected topic under faculty supervision. May be repeated when the topic varies.

7505-8505. Seminar in Musicology. (3). Seminars in selected areas of musicology. May be repeated when topic varies.

7506-8506. Seminar in Piano Repertory. (3). Seminars in selected areas of piano repertory. **PREREQUISITES:** MUHL 6001 or permission of instructor.

7531-8531. Early Musical Notations. (3). Examination of history of Western musical notations from the ninth through seventeenth centuries; transcription of medieval music from its original sources into modern notation; singing and playing renaissance and early baroque music from facsimiles of original manuscripts and prints.

7551-8551. Performance Practice I. (3). Historical techniques and conceptions of performance from Gregorian chant through the seventeenth century.

7552-8552. Performance Practice II. (3). Historical techniques and conceptions of performance since 1700.

7800-8800. Field Methods in Ethnomusicology. (3). An exploration of techniques for designing field research subjects and gathering information in the field; Special attention to techniques and problems related to the study of southern musical traditions.

7802-8802. Seminar in Ethnomusicology. (3). Seminars in selected topics. May be repeated for credit when the topic varies.

7803-8803. Individual Research In Ethnomusicology. (1-3). Individual research on a selected topic under faculty supervision. May be repeated if the topic varies. Only 3 hours credit may be applied toward a master's degree and only 6 hours credit toward a doctoral degree.

7804-8804. Internship in Southern Regional Music. (3). Practical experience in the application of knowledge and skills learned through the study of Southern regional music. The student will do supervised work in an area of music production, presentation, administration, or education for a public agency or in the private sector. This course may be repeated with a different type of internship, but only 3 credit hours may be applied toward any degree. **PREREQUISITE:** 18 credit hours in Ethnomusicology or Southern Regional Music.

†7996. Thesis. (1-3).

8801. Ethnomusicology. (3). A survey of concepts, problems, and methods of research in the interpretation of music in different social groups; emphasis on functional and popular music rather than art music, and on cultures other than Western European and North American.

8805. Transcription and Analysis in Ethnomusicology. (3). An examination of the problems and methods of transcribing and analyzing non-Western and traditional music; the uses and limitations of staff notation; alternative descriptive systems.

8806. Seminar in Southern Regional Music. (3). Major issues in the study of southern folk and popular music; includes the relationship between Afro-American and Anglo-American styles and traditions, the relationships of these styles and traditions to African and European music, and the interplay of traditionalism and commercialism in southern music. **PREREQUISITES:** Completion of 18 graduate level credit hours in music, including MUHL 7400 and MUHL 6801.

†9000. Dissertation. (1-9).

† Grades of S, U, or IP will be given.

SACRED MUSIC (MUSA)

6104. Sacred Music in History and Practice I. (3). Jewish and Christian sacred music, exploring origins of styles, traditions, and current practices. This course may NOT be used as part of Sacred Music core. (*Offered fall semester of alternate year.*)

6105. Sacred-Music in History and Practice II. (3). (*Offered spring semester of alternate year.*)

6106. Children's Choirs in the Church. (3). Organization and development of children's choir program; rehearsal techniques; literature; vocal development; recruiting; contemporary approaches. (*Offered fall semester.*)

6107. Service Playing for Organists. (3). Playing of hymns and accompaniments, adaptation of piano and orchestra accompaniments, basic improvisation. **PREREQUISITE:** Upper division standing in organ or permission of instructor. (*Offered spring semester of alternate year.*)

6260-69. Special Topics in Sacred Music. (1-3). Selected topics in Sacred Music. May be repeated with change of topic.

6801. Individual Studies in Sacred Music. (1-3). Directed individual study in selected areas of music chosen in consultation with instructor. May be repeated for maximum of 6 hours credit with permission of department chair.

7001-8001. Oratorio and Cantata. (3). Study of large non-liturgical sacred music forms from the seventeenth century to the present.

7102-8102. Musical Passions. (3). History of musical Passions from Gregorian usage through the present.

7103-8103. Sacred Choral Music of J. S. Bach. (3). The cantatas, motets, and other sacred choral works of J. S. Bach and their stylistic development from early sectional forms to Bach's mature style; revised chronology of cantatas and their relationship to instrumental works will be emphasized.

7801-8801. Studies in Sacred Music. (1-3). Directed individual or class study in selected areas of music chosen in consultation with instructor. May be repeated for a maximum of 9 hours credit with permission of department chair.

MUSIC EDUCATION (MUSE)

6205. Marching Band Techniques. (2). Organizing and conducting the marching band; gridiron charting and marching procedures with a study of precision drill, formation, and pageantry. (*Offered spring semester.*)

6208. Band Literature. (3). History and evolution of wind instruments and wind instrument playing; history and development of the wind band and its literature, with general background material on the specific composers involved. (*Offered spring semester.*)

6209. Piano Tuning and Repair. (2). Basic techniques involved in piano tuning and adjustment. Some basic tools are required.

6260-69. Special Topics in Music Education. (1-3). Selected topics in Music Education. May be repeated when topic changes. Training teachers for beginning through intermediate level piano instruction; establishing strong artistic, musical, and technical foundations; supervised practice teaching. (*Offered fall semester.*) **PREREQUISITE:** Permission of instructor.

6501. Piano Pedagogy I. (2). Training teachers for beginning through intermediate level piano instruction; establishing strong artistic, musical, and technical foundation. (*Offered fall semester.*) **PREREQUISITE:** Permission of instructor.

6503. Piano Pedagogy II. (3). Training teachers for advanced piano instruction; extensive readings from renowned artist-teachers and performers, development of ideation and memorization skills; observations and supervised practice teaching. (*Offered spring semester.*) **PREREQUISITE:** MUSE 6501 or permission of instructor.

6505. Collaborative Piano Techniques. (2). Performance class involving practical study of instrumental and vocal standard repertory and problems of ensemble playing; encourages facility in sight-reading and the ability to assimilate music rapidly; score reading, transposition, and figured-bass realization are introduced as skills necessary to well-rounded musicianship. (*Offered spring semester.*) **PREREQUISITE:** Permission of instructor.

6508. Principles of Suzuki Piano. (3). Suzuki philosophy as applied to the development of the child's abilities and the role of the teacher and the parent; analysis of the technical and musical instruction of the beginning piano student. (*Offered fall semester.*) PREREQUISITE: Undergraduate upper-division piano proficiency.

6511. Class Piano Pedagogy. (2). Survey of group instruction techniques in the teaching of beginning, intermediate, and early advanced piano, emphasizing observation and practical application. For piano majors and/or prospective piano teacher. (*Offered spring semester.*) PREREQUISITE: Upper division level in keyboard or permission of instructor, Basic Piano Pedagogy or equivalent recommended.

6514. Brass Pedagogy. (3). Current literature, principles, methods, and psychology in brass playing and teaching.

6802. Level I Orff-Schulwerk. (1-3). Basic Orff-Schulwerk techniques including body movement, soprano recorder, percussion, vocal performance, improvisation, and arranging. PREREQUISITE: Graduate standing in Music.

+7001-8001. Workshop in Music for Graduate Assistants. (1-3). Overview and practical demonstrations of the art of teaching music. Required of all graduate assistants. May be repeated for a maximum of 3 credits. Does not count toward degree requirements.

7101. Jazz Program Administration. (3). Basic administration of a college level jazz program; course and curriculum development/design, scheduling/ planning, material acquisition, basic equipment needs, budgeting and budget administration, concert and festival planning/programming/production. PREREQUISITE: Permission of instructor.

7103. Level II Orff-Schulwerk. (1-3). (6803). Intermediate level Orff-Schulwerk techniques including modal harmonization, irregular rhythms, alto recorder, performance, and more extensive improvisation and arranging. PREREQUISITE: MUSE 6802 or the equivalent.

7104. Level III Orff-Schulwerk. (1-3). (6804). Advanced Orff-Schulwerk techniques including original compositions, complex form, movement and instrumental arrangements, tenor and bass recorder performance, and advanced improvisation. PREREQUISITE: MUSE 7103 or the equivalent.

7202-8202. Music in Early Childhood. (3). Research and analysis of contemporary trends in field of early childhood education with emphasis on developing appropriate music activities for three to six year olds.

7203-8203. Choral Literature and Techniques. (3). Survey of choral literature from Dunstable to the present, using scores, records, and class performance; analysis of the scores in terms of style, form, and performance problems; techniques of teaching and conducting unfamiliar styles.

7204-8204. Instrumental Literature and Techniques. (3). Specific and intensive research in each student's major instrument, covering (1) history of the instrument; (2) tests, methods and periodicals; (3) orchestral studies; (4) solo and ensemble literature; and (5) listening and performance.

7207-8207. Tests and Measurements in Music Education. (3). The investigation of evaluative tools in music education, formulation, and utilization of measurement devices in music teaching and research.

7210-8210. Projects in Elementary Music Curriculum Development, Implementation, and Supervision. (3). Individualized in-depth study of a selected area in elementary school music education. Topics may include curriculum, program planning and development, evaluation of current practices, exploration of new or related fields. PREREQUISITE: Permission of instructor.

7211-8211. Projects in Secondary Music Curriculum Development, Implementation, and Supervision. (3). Individualized in-depth study of a selected area in secondary school music education, vocal or instrumental; may include curriculum, program planning and development, evaluation of current practices, exploration of new or related fields. PREREQUISITE: Permission of instructor.

7213-8213. Orchestration for Orff Instrumentarium. (3). An analysis of techniques used to orchestrate for Orff instruments as done in Europe, Asia, North and South America; original orchestrations in the elemental Orff style. PREREQUISITE: MUSE 4803-6803 or permission of the instructor.

7214. Master Class in Orff-Schulwerk. (2). Advanced pedagogy based on Orff-Schulwerk principles, designed to train workshop clinicians; includes orchestration techniques, ontogenetic treatment of rhythm and melody, movement improvisation, and recorder playing. PREREQUISITE: MUSE 4804-6804 or equivalent experience.

7216. Project in Class Piano Pedagogy. (1-3). Students, assigned to piano classes at the University and/or local secondary schools, will assist the principal teacher. May be repeated for a maximum of 3 credits when area of study varies. PREREQUISITES: MUSE 6511 or permission of instructor.

7221-8221. Music for Special Populations. (3). Recognition and comprehension of various disabilities and exceptionalities; techniques for teaching music to exceptional students. PREREQUISITE: MUSE 7402.

7260-79-8260-79. Special Topics in Music Education. (1-3). Selected topics in Music Education. May be repeated when topic changes.

7260-69. Special Topics in Jazz Studies. (1-3). May be repeated with change of topic.

7301. Choral Arranging. (3). Problems of arranging music for various choral groups: K-6, junior high, and senior high; 3- and 4- part women's and men's choruses; mixed choruses.

7402-8402. History and Philosophy of Music Education. (3). An examination of the historical and philosophical foundations that underline the curricula and instructional programs in music.

7403-8403. A Survey of Research in Music Education. (3). Designed to acquaint students with theoretical and practical field research, to refine writing skills, to hypothesize, and to develop potential research problems.

7503. Introduction to Suzuki Piano. (3). Suzuki philosophy as applied to the development of a child's abilities; particular emphasis on listening, parent-teacher relationship, tone production, posture, technique, and Suzuki Piano Volume I-A; includes observation of lessons and classes taught by experienced teachers in the University Suzuki Piano Program. PREREQUISITE: Audition or permission of instructor.

7504-8504. Suzuki Piano Literature and Technique I. (3). Analysis of pedagogical materials and fundamental techniques introduced in Volumes I-III of Suzuki Piano School; emphasis on listening, tone production, independence, independence of hands, musical forms and styles, musical expression; introduction of music reading, scales and chord progressions; observation of lessons and classes taught by experienced teachers in the University Suzuki Piano Program. PREREQUISITE: MUSE 7503 or permission of instructor.

7505-8505. Suzuki Piano Literature and Technique II. (3). Analysis of pedagogical materials and fundamental techniques introduced in Volumes IV-V of Suzuki Piano School; continuation of techniques to cover the advanced technique and understanding of musical styles required for the literature in these volumes; observation of lessons and classes taught by experienced teachers in the University Suzuki Piano Program. PREREQUISITE: MUSE 7504 or permission of instructor.

7506-8506. Independent Study in Suzuki Teaching. (3). Independent study of a selected topic in relation to Suzuki philosophy and method. PREREQUISITE: MUSE 7510 or permission of the instructor.

7510. Advanced Suzuki Piano Pedagogy. (3). Analysis of pedagogical materials and fundamental techniques introduced in Volumes VI-VII of the Suzuki Piano School and pieces traditionally used following Volume VII; particular emphasis on pedal technique, ornamentation, arpeggios, supplemental pieces, and preparation for auditions and competitions; continued observation of lessons and practicum teaching. PREREQUISITE: MUSE 7505 or permission of instructor.

7511. Projects in Piano Pedagogy. (1-3). Individual projects designed to explore problems of teaching under supervision. May be repeated

for a maximum of 3 credits when the topic varies. **PREREQUISITE:** permission of instructor.

7512-8512. Pedagogy for the Applied Voice Teacher. (3). Prepares singers to handle the studio lesson with an emphasis on teaching all voice types; rudimentary knowledge of the physiology of singing will be learned; study of the historical approach to singing techniques and vocal methods; analyzing the tone and corrective exercises.

7601. Introduction to Suzuki Talent Education. (3). Suzuki philosophy and method; educating Suzuki parents, setting up a program; teaching beginning steps in preparing students for the Twinkle variations and Suzuki Book I.

7602. Suzuki Violin Literature and Technique I. (3). Analysis of pedagogical materials and fundamental techniques introduced in volumes I-IV of Suzuki Violin School; exploration of various reading methods, introduction of music theory concepts, two and three octave scales, two octave arpeggio series, and circle of keys.

7603. Suzuki Violin Literature and Technique II. (3). Analysis of pedagogical materials and fundamental techniques introduced in volumes V-VI of Suzuki Violin School; two octave major and minor scales and arpeggios, all three octave major and minor arpeggios, and exploration of more advanced reading methods.

7604. Advanced Suzuki Violin (3). Analysis of pedagogical materials and fundamental techniques introduced in volumes VII-VIII of Suzuki Violin School; all three octave major and minor scales in circle of keys, two octave chromatic scales, three octave arpeggio sets, all major and minor two octave doublestop scales.

†7996. Thesis. (1-3).

†9000. Dissertation. (1-9).

†Grades of S, U, or IP will be given.

APPLIED MUSIC (MUAP)

6004. Orchestral Excerpts. (2). Study and performance of selected orchestral excerpts suitable for auditions. **PREREQUISITE:** Permission of instructor.

6103. Jazz and Studio Ensemble Techniques. (3). Jazz and studio performance styles and practices, emphasizing ensemble rehearsal and conducting techniques, articulation, phrasing, balance and blend, line dominance, and recording studio performance skills. (*Offered fall semester.*) **PREREQUISITE:** MUTC 3828.

6260-69. Special Topics in Applied Music. (1-3). Selected topics in Applied Music. May be repeated with change of topics.

6263. Reed Making. (1). A laboratory course designed to help students become independent reed makers. May be repeated for credit.

6801. Individual Studies in Applied Music. (1-3). Directed individual instruction in an applied area not listed under the MUAP course prefix. May not exceed 6 hours credit.

Ensembles: All ensembles may be repeated for credit.

7002. Chamber Music. (1).

7099. Chamber Music Recital. (1).

7101. Wind Ensemble. (1).

7102. Orchestra. (1).

7103. University Singers. (1).

7104. Opera Chorus. (1).

7105. Oratorio Chorus. (1).

7106. Concert Band. (1).

7107. Jazz Ensemble. (1).

7108. Opera Workshop. (1).

7201. Brass Ensemble. (1).

7202. Jazz Combo. (1).

7203. Chamber Music for Pianists. (1).

7204. Percussion Ensemble. (1).

7205. Contemporary Chamber Players. (1).

7206. Orff Ensemble. (1).

7207. String Ensemble. (1).

7208. Camerata Players. (1).

7209. Camerata Singers. (1).

7210. Opera Soloists. (1).

7211. Woodwind Ensemble. (1).

7212. Collegium Musicum. (1).

7213. Jazz Vocal Ensemble. (1).

7260-89-8260-89. Special Topics in Applied Music. (1-3). Selected topics in Applied Music. May be repeated with change of topic.

7620-8620. Independent Study in Symphonic and Operatic Conducting. (3). Detailed study of advanced conducting techniques including styles, mechanics, score reading and preparation, and rehearsal techniques and organization; practical experience in orchestral and operatic conducting. May be repeated for credit. **PREREQUISITES:** MUAP 7701 and/or permission of instructor.

7622-8622. Independent Project in Opera Direction. (3). Actual staging or musical direction of an opera workshop or opera theatre production. May be repeated for credit. **PREREQUISITE:** MUAP 7623 and permission of instructor.

†7699-8699. Production Practicum. (3-6). Required of majors in Opera and Conducting and Opera Production and Directing. May be repeated for credit.

7701-8701. Advanced Conducting. (3). Conducting the concert band, the symphony orchestra, and the chorus in the larger musical forms; emphasis on interpretation. May be repeated for credit. **PREREQUISITE:** Permission of instructor. \$100.00 instruction and lab fee.

7702-7802. Conducting Practicum. (3). Supervised rehearsal and preparation of a public performance with a large ensemble.

7703-8703. Score Study and Aural Training for Conductors. (2). Skills of score reading, ear training, and score analysis for conductors.

7801-8801. Studies in Jazz and Commercial Music. (3). Directed individual or class study in selected areas chosen in consultation with instructor. May be repeated with change in topic for a maximum of 9 hours credit.

†7899-8899. Lecture Recital. (1-3). Student must be concurrently enrolled in an appropriate applied music course. All policies relating to dissertations are applicable to lecture recitals.

†7901-8901. Lecture Recital Research. (1-3). Preparation of research document from which material for lecture recital is to be drawn. Topics to be approved by major professor and appropriate division coordinators. All policies relating to dissertations are applicable to this course.

†7996. Thesis. (1-3).

†7999-8999. Recital. (1-3). Student must be concurrently enrolled in an appropriate applied music course.

8002. Seminar in Performance Problems. (3). Study of literature and material for the performances necessary to prepare for the qualifying examination. Preparation of the dissertation recitals. **PREREQUISITE:** Admission to curriculum in performance. May be repeated for credit.

†9000. Doctoral Research Document. (1-9). Preparation of the research documents as part of the dissertation equivalent. All policies relating to dissertations are applicable to the course.

†Grades of S, U, or IP will be given.

(INDIVIDUAL LESSONS)

FEES: See "Expenses" section of this bulletin. Fees are paid to the University at the office of the Business Manager.

CREDITS AND GRADES: A full-hour lesson will be given all persons enrolled in graduate applied music, regardless of credit-hours awarded. Music Education majors, applied music minors, and applied music electives will be allowed to register for two hours of credit only. Applied majors may register for two to six hours of credit, as permitted. Grades are awarded in accordance with the jury system and have the same significance as in any other subject. All graduate applied music juries shall be scheduled for fifteen minutes.

REGISTRATION: Students will register for individual lessons at the same time and the same manner that they register for other courses.

Individual Lessons may be repeated for credit in subsequent semesters, but not for the purpose of improving the grade originally earned.

Instrument	Music Education Majors Applied Music Minors Applied Music Electives	Applied Music Majors Applied Music Minors Applied Music Electives
	No Recital Required 1-2 Hours Credit	Recital Required 2-6 Hours Credit
Trumpet	6111	7111/8111
Coronet	6151	
Sackbut	6161	
Horn	6121	7121/8121
Trombone	6131	7131/8131
Tuba	6141	7141/8141
Piano	6311	7311/8311
Harpsichord	6321	7321/8321
Organ	6331	7331/8331
Percussion	6411	7411/8411
Violin	6511	7511/8511
Baroque Violin	6512	7512/8512
Viola	6521	7521/8521
Cello	6531	7531/8531
Bass	6541	7541/8541
Guitar	6551	7551/8551
Harp	6561	7561
Viola da Gamba	6571	7571
Voice	6611	7611/8611
Flute	6711	7711/8711
Oboe	6721	7721/8721
Clarinet	6731	7731/8731
Saxophone	6741	7741/8741
Bassoon	6751	7751/8751
Recorder	6761	

† Grades of S, U, or IP will be given.

THEATRE AND DANCE

Room 143, Theatre and Communication Building

ROBERT A. HETHERINGTON, MA
Chair

GLORIA BAXTER, MA
Coordinator of Graduate Studies
(901) 678-2523

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MEMBERS

- GLORIA D. BAXTER, *Professor*
MA (1965), Northwestern University [2006]
SUSAN C. CHRIETZBERG, *Associate Professor*
MEd. (1968), Middle Tennessee State University [2004]
PAMELA A. GOSS, *Assistant Professor*
MFA, (1990), Northwestern University [2004]
JOANNA P. HELMING, *Associate Professor*
MA (1967), Memphis State University [2006]
ROBERT A. HETHERINGTON, *Professor*
MA (1976), Northwestern University [2003]
DOUGLAS J. KOERTGE, *Associate Professor*
PhD (1973), The University of Illinois [2004]
ANITA JO LENHART, *Associate Professor*
MFA (1985), Florida State University [2005]
MOIRA J. LOGAN, *Associate Professor*
MFA (1972), Sarah Lawrence College [2004]

JOHN J. McFADDEN, JR., *Professor*
MFA (1975), The Pennsylvania State University [2006]

ASSOCIATE MEMBERS

- STEPHEN W. HANCOCK, *Assistant Professor*
MFA, (1984), The Pennsylvania State University [2004]
HOLLY C. LAU, *Associate Professor*
MFA (1991), Ohio State University [2002]
MICHAEL S. O'NELE, *Assistant Professor*
MFA (1998), University of Missouri-Kansas City [2004]
KARA L. O'TOOLE, *Assistant Professor*
MFA (1999), University of Washington [2006]

- I. The Department of Theatre and Dance offers graduate programs leading to the Master of Fine Arts degree in Theatre. Within the MFA degree in Theatre, training is available in directing and in design and technical production.

The University of Memphis is an accredited institutional member of the National Association of Schools of Theatre.

II. MFA Degree Program**A. Program Admission**

Admission to the program is competitive and is not automatic upon meeting minimum admission requirements. Students are selected from the pool of qualified applicants; the number of students admitted yearly depends on the availability of program resources required to maintain a high level of student/faculty contact and professional training.

Procedures include:

1. Admission to the Graduate School. Note that the Department of Theatre and Dance requires a grade point average of at least 2.5 from an accredited undergraduate institution. As well, the department will require additional evidence of suitable academic preparation, typically demonstrated by an acceptable score on the Graduate Record Exam.
 2. Submission of a separate departmental application identifying prior theatre education and experience and professional goals.
 3. An interview with appropriate program faculty either at the university or at a regional or national conference.
- Departmental applications are available upon request from the Department of Theatre and Dance.

B. Degree Requirements

1. Successful completion of a minimum of 60 semester hours of graduate credit approved by the student's Graduate Advisory Committee. A minimum of 70% (42 hours) of the total required hours must be 7000 level courses. A minimum GPA of 3.0 is required for graduation.
2. All students in the program must take the following core courses: THEA 7564, Studio in Theatrical Collaboration and Style; 7581, Seminar in Dramatic Theory and Criticism; and 7582, Analysis of Dramatic Literature.
3. Satisfactory completion of a committee-approved qualifying artistic project—the Qualifier Project.
4. Satisfactory completion of a committee-approved major artistic project—the Practicum Project.
5. Satisfactory completion of a committee-approved internship in a professional setting: THEA 7600.
6. Satisfactory completion of a comprehensive examination.

C. Graduate Advisory Committee

Each student will have a Graduate Advisory Committee. The functions of the committee shall be:

1. To approve the three-year Plan of Study (which may include remedial work).
2. To monitor academic and artistic progress.
3. To monitor quality and quantity of participation in the theatre production program.
4. To approve and evaluate the Qualifier Project, the Production Practicum Project, the internship, and the comprehensive examination.

D. Annual Progress Review

Progress in the MFA program involves more than the successful completion of academic course work. Artistic progress and engagement in the theatre production program of the department are also required.

1. MFA Portfolio Review: Each year all design students will meet with the design faculty and all directing students with the directing faculty for Portfolio Review. At that time, the student's competencies, artistic progress, and professional presentational skills will be evaluated.
2. Annual Graduate Review: Following the end-of-year Graduate Advisory Committee meeting with each student, the full faculty will meet to review the status and progress of each student. Possible outcomes of the evaluation process include: (a) continuance in the program without condition; (b) continuance in the program with conditions; or (c) non-continuance in the program.

Note: A more detailed discussion of program requirements may be found in the Department of Theatre and Dance Graduate Policy Manual available from the department office.

THEATRE (THEA)

6210-19. Special Topics in Theatre. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

6401. Children's Literature in Performance. (3). Adaptation of children's literature for performance in theatrical and educational settings; includes styles of literature, principles of performance, and production of material designed for young audiences. May be repeated for up to 6 hours credit with permission of instructor.

6457. Interpretive Styles. (3). Exploration of performance style as it evolves from language, structure, and style of the literary text; materials for performance will vary each semester and may alternate among the genres of prose fiction, poetry, and period drama. Repeatable for a maximum of 9 hours when topic varies. Offered alternate years. PREREQUISITE: Permission of instructor.

6501. Advanced Movement Styles. (3). Advanced study in physical theatre styles; varied semester topics: performance art; mask performance; fighting styles for period weapons; and physical theatre techniques for directors, choreographers, teachers. Repeatable for maximum of 6 hours when content varies. PREREQUISITE: permission of instructor.

6503. Creative Dramatics. (3). Basic techniques and theories for the use of dramatization in elementary and secondary education; topics include socio-drama, dramatization of school subjects and daily concerns, and improvisation and creation of dramatic plays.

6514. Theatrical Rendering Techniques. (3). Materials and techniques for rendering theatrical space and scenic, costume, lighting, and properties design elements.

6515. Scene Painting. (3). Lecture laboratory course covering the techniques of painting scenery for the stage. Offered alternate years.

6516. Technical Direction. (3). Lecture/laboratory for theatre technicians to include production organization and safety, engineering, rigging, materials control, and supply ordering. Offered alternate years.

6531. Acting Styles. (4). The development of acting styles as influenced by the environments of historical periods. Offered alternate years. May be repeated for a maximum of 8 hours.

6532. Advanced Acting Styles. (4). Continued work in acting styles. Offered alternate years. May be repeated for a maximum of 8 hours.

6551. Theatre History—Classic. (3). Shaping forces and theatrical forms in Western civilization from Greek times to Romanticism. Offered alternate years.

6552. Theatre History—Modern. (3). Continuation of 6551 to the present. Offered alternate years.

6554. Visual History for Theatrical Design. (3). Design aesthetics of selected historical periods as applied to theatrical design. May be repeated for a maximum of 6 hours credit.

6555. Technical Production Studio: Theatre Technology. (3). Lecture/laboratory using traditional and contemporary materials and scenic technologies including rigging, metals and welding, wood working, and plastics. PREREQUISITE: THEA 3511 or permission of instructor.

6556. Technical Production Studio: Lighting. (3). Technical principles that support areas of theatrical lighting design; includes instrumentation and equipment, electricity and electronics, control systems, operation and maintenance principles and procedures for stage electricians.

6557. Technical Production Studio: Costume. (3). Intermediate costume construction techniques employing both traditional and experimental methods for sewing; brings costume design from concept to reality. PREREQUISITE: THEA 3562 or permission of instructor.

6571. Playwriting. (3). Theory and principles of writing plays for the stage; practice in writing either the short or long play. Offered alternate years. May be repeated for a maximum of 9 hours.

6592. Theatre Architecture and Facilities Planning. (3). Processes and techniques employed by theatre planners in design and construction/renovation of theatrical spaces and structures; includes survey of theatre forms, historical development of theatrical structures and spaces, programming methods and procedures, specification, renovation

techniques, multi-use structure concepts, and consultation procedures and practices. Offered alternate years. PREREQUISITE: Permission of instructor.

6595. Technical Production Studio: Sound. (3). Technical principles that support areas of theatrical sound design; includes digital and analog equipment, audio signal theory and technologies, systems design, software, operational principles and procedures for theatrical sound engineers.

6631. Acting for Film and Television. (4). Educational experience for the actor in the media of film and television, concentrating on dramatic, commercial, and documentary areas. PREREQUISITE: Permission of instructor. Offered alternate years.

7210-19–8210-19. Special Topics in Theatre. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours when topic varies.

7431. Seminar in Directing Narrative Theatre. (3). Theory and technique for directing literary texts not originally written for the theatre; stage adaptations of short stories, novels, and compiled scripts; script preparation and directing projects required. Repeatable for a maximum of 6 hours. Offered alternate years. PREREQUISITE: THEA 7521 or permission of instructor.

7440. Seminar in Critical Studies. (3). Advanced studies in theatre criticism, dramatic literature, and theatre history; methods of scholarly research appropriate for the dramaturg and producing artist; semester topics alternate among studies of selected authors, periods, genres, and theatre movements. Repeatable for a maximum of 9 hours when topic varies. Offered alternate years. PREREQUISITE: Permission of instructor.

7521. Stage Direction. (3). Processes of stage direction from script interpretation to rehearsal and performance with emphasis on the collaborative interplay between stage director and designer; traditional and non-traditional theatrical modes; directing projects required.

7526. Directing Studio. (3). Seminar/practicum investigation of advanced techniques of the stage director; styles of production, creative interpretation of established dramatic literature and/or creation of original work for the stage. Directing project required. Repeatable for a maximum of 9 hours. PREREQUISITE: THEA 7521.

7551. Seminar in Theatre Aesthetics. (3). Aesthetic theories affecting the theatre from Classical Greece to the present; special attention to the study of interrelationship between theatre and the other arts. May be repeated for maximum of 6 hours. Offered alternate years.

7553. Styles of Directing. (3). Production styles and methodologies evidenced in art of major modern directorial innovators. Directing projects required. Repeatable for a maximum of 6 hours with permission of instructor. Offered alternate years.

7554. Seminar in Directing. (3). Conceptual and practical studies in stage direction with emphasis on the collaborative interplay between stage director and actor. Directing projects required. Repeatable for a maximum of 6 hours with permission of instructor. Offered alternate years. PREREQUISITE: Permission of instructor.

7560-8560. Directed Studies in Design and Technical Production. (3). Individually supervised design and technical production projects in areas of scenery, costumes, lighting, and sound. Repeatable for a maximum of 9 hours. PREREQUISITE: Permission of instructor.

7561. Design Studio: Scenery. (3). Studio explorations of creative design process and its relation to theatrical space and environment; emphasis on analysis, creative expression, and portfolio development involving two and three dimensional scenic design projects.

7562. Design Studio: Lighting. (3). Aesthetic principles and practical methodologies for design of lighting: expression of style in various theatrical forms and modes of production; includes research, criticism, project work. PREREQUISITES: THEA 6556 or permission of instructor.

7563. Design Studio: Costume. (3). Exploration and application of aesthetic principles of costume design; special consideration to interpretation of character and period through line, color, and fabric, employing variety of rendering processes in the studio environment.

7564-8564. Studio in Theatrical Collaboration and Style. (3). Exploration of elements of style as they pertain to concept development for

theatrical production; engagement in dynamics of the collaborative process.

7566. Design Studio: Sound. (3). Seminar and practicum in the style and process of theatrical sound design. **PREREQUISITE:** THEA 6595 or permission of instructor.

7568. Computer Applications for Theatre. (3). The computer and its role in theatrical production; families of software and their application to theatrical production activities; text, numeric, and data processing concepts and applications. **PREREQUISITE:** Permission of instructor.

7571-8571. Advanced Playwriting. (3). Continuation of theories and practice of playwriting with the object of achieving a finished script, ready for production. May be repeated for maximum of 9 hours. Offered alternate years. **PREREQUISITE:** THEA 6571.

7581. Seminar in Dramatic Theory and Criticism. (3). Major documents in dramatic theory and criticism from Aristotle to present. Offered alternate years.

7582. Analysis of Dramatic Literature. (3). The dramatic text as basis for unified and purposeful production concept; advanced techniques of director and scenographer used to solve artistic/practical problems of specific plays. Offered alternate years.

7592. Theatre Planning & Management. (3). Principles of theatre planning and management for educational and regional theatres. May be repeated for maximum of 9 hours. Offered alternate years.

†7600-8600. Internship. (1-3). Supervised work completed in a professional setting. Repeatable for a maximum of 6 hours. **PREREQUISITE:** Permission of the advisory committee.

†7800. Research in Theatrical Practice. (3). Research, practice, methodology, or pedagogy in theatre. Open only to graduate assistants. May be repeated for a maximum of 12 hours.

7993-8993. Special Problems. (1-3). Directed individual investigation of special research. **PREREQUISITE:** Permission of instructor.

7994-8994. Special Problems. (1-3). Directed individual investigation of special research. **PREREQUISITE:** Permission of instructor.

†7995-8995. Production Practicum. (3-6). Creative performance or production project suitable for public presentation and/or a practical application. Project to be determined in consultation with and directed by the student's supervisory committee.

† Grades of S, U, or IP will be given.

DANCE (DANC)

6000-6029. Special Topics in Dance. (1-3). Topics are varied and announced in *Schedule of Classes*. May be repeated for maximum of 9 hours.

6101. Dance Repertory. (3). Exploration of stylistic, technical, and expressive elements in rehearsal and performance; may include notated works, faculty, and guest artist choreography. May be repeated for maximum of 9 hours. **PREREQUISITE:** Permission of instructor.

6201. Dance Composition. (3). Investigation of movement sources and development of elements of choreographic craft; emphasis on solo and duet work. May be repeated for maximum of 6 hours with permission of instructor. **PREREQUISITE:** Permission of instructor. Offered alternate years.

6202. Advanced Dance Composition. (3). Investigation of movement sources and choreographic craft for group forms from concept development through rehearsal and performance. May be repeated for a maximum of 6 hours. **PREREQUISITE:** DANC 6201 or permission of instructor.

6301. Directed Studies. (1-3). Individual study, research, or practicum. May be repeated for maximum of 12 hours. **PREREQUISITE:** Permission of instructor.

6402. Dance Education in Diverse Settings. (3). Theory, methods, and materials for teaching Modern and Creative Dance in schools, dance studios, arts programs, and community settings; includes current research in aesthetic education and curriculum development. **PREREQUISITE:** Permission of instructor.



The College of Education

JOHN W. SCHIFANI, EdD
Interim Dean

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GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration within Major	Degree Offered
Consumer Science and Education	Consumer Science and Education		Master of Science (MS)
	Clinical Nutrition		Master of Science (MS)
Counseling, Educational Psychology, and Research	Counseling and Personnel Services	(1) School Counseling (2) Community Agency Counseling (3) Rehabilitation Counseling (4) Student Personnel Services	Master of Science (MS) Doctor of Education (EdD)
	Counseling Psychology		Doctor of Philosophy (PhD)
	Educational Psychology and Research	(1) Educational Psychology (2) Educational Research	Master of Science (MS) Doctor of Philosophy (PhD)
Human Movement Sciences and Education	Human Movement Science	(1) Exercise and Sport Science (2) Health Promotion (3) Sport and Leisure Commerce	Master of Science (MS)
Instruction and Curriculum Leadership	Instruction and Curriculum Leadership	(1) Instruction and Curriculum (2) Instructional Design and Technology (3) Reading (4) Early Childhood Education (5) Special Education	Master of Science (MS) Doctor of Education (EdD)
		(1) Early Childhood Education (2) Elementary Education (3) Secondary Education (4) Special Education	Master of Arts in Teaching (MAT)
Leadership	Leadership and Policy Studies	(1) School Administration and Supervision (2) Leadership	Master of Science (MS)
		(1) Educational Leadership (2) Community Education (3) Policy Studies	Doctor of Education (EdD)
	Higher and Adult Education	(1) Higher Education (2) Adult Education	Doctor of Education (EdD)
Interdisciplinary	Education	Education Specialist (EdS)	

Individual program requirements described in *The University of Memphis Graduate Bulletin, 2001-2003*, are subject to change. Please consult your department or the Office of the Graduate School for changes that may occur before publication of the next issue of this Bulletin; or consult the Graduate School website at: <http://www.memphis.edu/gradschool> for annual catalog updates.

Graduate programs in the College of Education prepare students to be leaders within their professional areas of education. Candidates for a degree must design a curriculum plan that has the approval of their major advisor, the department chair, and the Assistant Dean for Graduate Studies.

The College of Education offers degrees at the master's, specialist, and doctoral levels. The master's degree programs are the Master of Arts in Teaching (MAT) and Master of Science (MS). Offered at the post-master's level are the degrees of Education Specialist (EdS), Doctor of Education (EdD), and Doctor of Philosophy (PhD) with a major in Counseling Psychology or Educational Psychology and Research.

Graduate degrees in the College of Education are available in the departments of Consumer Science and Education; Counseling, Educational Psychology, and Research; Human Move-

ment Sciences and Education; Instruction and Curriculum Leadership; and Leadership.

For specific information concerning majors, areas of concentration, course requirements, etc., students should review the program descriptions found under the departmental listings in this Bulletin. See the chart of academic programs at the beginning of this section for majors and concentrations.

MASTER'S DEGREE PROGRAMS

The College of Education offers programs leading to the Master's degree in the departments of Consumer Science and Education; Counseling, Educational Psychology, and Research; Human Movement Sciences and Education; Instruction and Curriculum Leadership; and Leadership.

Master of Science Degree (MS)

The Master of Science degree is available to individuals who are already licensed and want to expand their work in their teaching areas or individuals without licensure who desire to work in education-related settings but do not need teacher licensure. This degree is directed toward the development of competencies necessary for leadership and advancement in K-12 settings and fields related to education.

Master of Arts in Teaching Degree (MAT)

The Master of Arts in Teaching degree is designed for people with outstanding undergraduate records who are seeking initial teacher licensure at the graduate level. It is also available to those already licensed who seek additional licensure in one or more areas. Students may pursue licensure in special education, early childhood, elementary, or secondary fields.

Teacher Licensure

Individuals who wish to acquire teaching licensure without pursuing a degree may enroll in the licensure-only program.

Admission to Master's Degree Candidacy

Upon notification of admission to the Graduate School, the student may enroll and begin to take courses. However, a student's initial enrollment in no way should be taken to mean acceptance for degree candidacy. To become a candidate for a degree, the student must file an "Application for Admission to Master's Degree Candidacy" form which is available in the Graduate School, in the Dean's Office, or online at www.people.memphis.edu/~gradsch/mdc.html. For information on the procedures for completing degree candidacy forms, the student should consult the major advisor. The "Application for Admission to Master's Degree Candidacy" must be filed in the semester preceding the semester of graduation.

Appointment of Advisor

Prior to initial enrollment, the student is advised to arrange an interview with the chair or a representative of the department in which the student plans to major. At this meeting the student may be assigned an advisor who will help the student in planning a program of studies. Some departments appoint an advisor upon admission.

Workshops and Independent Study Credits

The maximum combined credit in "Independent Study" and "Workshop" courses that can be applied to the master's degree is 10 semester hours with no more than 6 semester hours applying to the major. Seven semester hours of credit in "Independent Study" courses may be applied to master's degree requirements, but no more than 4 of these hours may be taken in either the major or the collateral area.

If the student should elect to take "Workshop" courses and no "Independent Study" courses, only 6 workshop hours could apply to the major.

Other Requirements

For all programs, a minimum of 70% of the total required hours must be taken at the 7000 level. At least 12 semester hours of these must be taken in the major.

Program of Studies

Each student, in consultation with an advisor, will plan a program of studies leading to the fulfillment of the requirements for one of the degrees listed below.

Minimum requirements for the Master of Science degree are:

Major:

Content for Specialty 18-21 hours
Research 3 hours (EDPR 7521 or 7523)—must be taken within the first 15 hours of the program
Electives (selected in consultation with student's advisor) 12-15 hours
Total 36 hours

Minimum requirements for the Master of Arts in Teaching degree are:

Major:

Content for Specialty 30-46 hours (Includes thesis or Master's Project)
Research 3 hours
College Core 3 hours (Cultural Foundations or Educational Psychology)
Supportive Studies 6-9 hours
Total 43-57 hours*

*Students enrolled in an articulation agreement between a designated college and The University of Memphis may be required to take fewer hours.

Substitutions for Required Courses

Any substitutions for departmental required courses in the major must be approved by the advisor and the department chair. Substitutions that affect college or degree requirements must be approved by the advisor, the department chair, and the Assistant Dean for Graduate Studies.

Master's Thesis

A thesis of 3 to 6 semester hours may be presented as partial fulfillment of degree requirements. Each degree candidate must enroll for thesis credit each semester until the thesis is completed. A student who fails to complete the thesis at the end of the academic semester following registration for the total credits allowed to count toward the degree will be required to renew his/her status. In order to remain in active status, the candidate will be required to register for 1 hour of thesis credit each academic semester until the thesis is completed. Summer school enrollment is optional for continuous enrollment. Students must be registered for 3 hours of thesis credit in the semester in which they defend. Credit will be posted upon the completion and acceptance of the thesis, but no more than 6 hours will be counted toward degree requirements for a master's thesis. This requirement may be waived for any semester the advisor is not on campus or for other reasons approved by the major advisor, the department chair, and the Assistant Dean for Graduate Studies of the College of Education.

Students in the MAT program may not enroll in thesis credit during the semester of student teaching.

Thesis Guidelines

Theses must be prepared according to guidelines specified by the College. For specific information, a student should consult his/her major professor.

Master's Project

Students choosing to complete a Master's Project for the MAT degree must enroll in 3 hours of Master's Project credit. A grade of IP (In Progress) will be assigned until the Master's Project is completed. Students in the MAT program may not enroll in the Master's Project during the semester of student teaching.

Master's Comprehensive Examination

Before being recommended for graduation, every candidate for the master's degree is required to pass a final comprehensive examination. It may be oral or written or both, at the discretion of the department.

The comprehensive exam is administered each semester and during the summer session. The student must consult the *Schedule of Classes* of the semester he or she plans to take the exam for information about application deadlines and the exam schedule. To be permitted to take the exam, the student must sign up in the department office before the indicated deadlines.

Departmental requirements with reference to thesis, research, and course requirements for each of these degree programs are found under the appropriate departmental sections in the Bulletin.

EDUCATION LICENSURE AT THE GRADUATE LEVEL

The Master of Science degree program is used for securing additional endorsements in the areas of Beginning Administration K-12(B), Professional Administration K-12, Counselor K-12, Librarian K-12, Special Teacher of Reading (grades K-8 or 7-12), Early Childhood PreK-4, Special Education Modified, Special Education Comprehensive, and Special Education Early Childhood. The applicant who wishes to add these areas must complete an approved program and be recommended by the College.

To obtain a Tennessee License with an endorsement in one of the following areas: School Psychologist, Special Education Hearing PreK-12, or Special Education Speech and Language PreK-12, the applicant must complete the approved program and be recommended by the College.

Initial Teacher Licensure

Two graduate level teacher preparation programs for initial licensure are offered by the College of Education. The Master of Arts in Teaching (MAT) program awards initial teacher licensure with a master's degree. The licensure-only program is for students seeking initial teaching licensure but not a master's degree. Both programs are available for Early Childhood (PreK-4), Elementary (K-8), Secondary, Special Education: Modified or Comprehensive (K-12), and Special Education: Early Childhood (PreK-4).

Certificate in Instructional Computing Applications

This certificate program is designed for educators who want to integrate the use of computers in the classroom. The certificate requires the completion of 12 hours from a designated core of courses. The focus of these courses is to develop the technological competencies needed for the development, utilization, and integration of instructional computing technology in the classroom.

Admission: Students interested in receiving a Certificate in Instructional Computing Applications must be admitted to a College of Education graduate program. The courses may be completed as part of a degree program with the advisor's approval, or as additional course work.

Requirements

1. Core courses: IDT 7061, IDT 7062, IDT 7063, IDT 7064
2. Students interested in developing computer-based instruction may substitute IDT 7578 for IDT 7062. Students interested in developing computer training workshops for teachers may substitute IDT 7076 for IDT 7063. Both substitutions must be approved by the advisor.

Adding New Endorsement Areas

The Master of Arts in Teaching degree may also be pursued by students wishing to change their teaching fields. Students pursuing this degree will be required to meet the departmental prerequisites and teaching licensure requirements. Students may prepare in more than one discipline if they are seeking teaching endorsements in more than one field.

Internships/Student Teaching

Students seeking initial licensure or add-on endorsements must complete at least one semester of student teaching/internship requirements in the placements coordinated and approved by the Coordinator of Field Experiences in the College of Education. Students seeking most licensures may not student teach/intern during the summer semester.

Policies Governing Licensure at the Graduate Level

Students who have received a bachelor's degree from an accredited institution that did not qualify them for a teacher's license may become eligible for licensure by enrolling as a master's student in the MAT degree program or by enrolling as a graduate non-degree student in the licensure-only program and completing the requirements for the program according to the current catalog. These candidates should confer with the coordinator of MAT licensure program concerning individual program requirements. Before the College of Education will recommend a candidate to the Tennessee State Department of Education for teacher licensure, at least 50% of the professional education requirements for licensure must be completed at The University of Memphis.

Procedures for Admission to the Graduate Level Teacher Preparation Programs

The student must apply for admission to the Graduate School and to the Master of Arts in Teaching degree program or the licensure program. When approved, the student will be assigned a graduate advisor.

For initial licensure the student must have an appropriate undergraduate major for the area of teaching licensure being sought.

Adding an endorsement at the graduate level that requires The University of Memphis's recommendation may be accomplished by completing the requirements of the approved program. Information can be obtained from the teacher licensing advisor.

Simultaneously with admission to the MAT or teacher licensure program, the student must apply for and meet stan-

dards required for admission to the Teacher Education Program (TEP). Only Level I MAT courses should be taken prior to admission to TEP. Students must be fully admitted to TEP one full semester before application to student teaching and internship is submitted. Application for student teaching/internship is submitted the semester before enrolling in student teaching/internship.

For additional information, consult the general advisor in the College of Education.

The Master of Arts in Teaching degree may be earned with the completion of a thesis or Master's Project. The acceptability of the student's overall performance in the MAT program will be demonstrated through a written or oral examination near the end of the student's program.

For a more detailed explanation of the program, see the Department of Instruction and Curriculum Leadership program description.

POST-MASTER'S DEGREE PROGRAMS

The post-master's degree programs of the College of Education require the candidate to have a clear professional goal and a commitment to scholarship, leadership, and excellence. To accomplish this, a close, continuous professional interaction between the candidate, faculty, and fellow students is an integral part of the program of study.

To be admitted to post-master's degree candidacy in the College of Education, the student must first meet all Graduate School requirements and then complete a candidacy file in the department in which admission is sought.

Education Specialist (EdS)

The Education Specialist is an interdisciplinary degree designed to provide an individualized, flexible program of studies for the educator-practitioner in either a school or non-school setting, whose academic interests are aimed at specific and individual career goals and needs. It offers opportunities for advanced professional specialization and includes a relevant culminating experience or a thesis. Studies may be focused in the departments of Counseling, Educational Psychology, and Research; Instruction and Curriculum Leadership; and Leadership. A collaborative EdS is offered with The Department of Psychology.

Doctor of Education (EdD)

Doctor of Education programs in the College of Education are designed to improve the competency of teachers, counselors, supervisors, and administrators; to serve the career needs and goals of individuals in education-related fields; to encourage research in a student's area of concentration; and to initiate and implement programs involving the school and the community. The programs provide both breadth and depth of preparation through a flexible combination of academic specialization, interdisciplinary study, and significant research.

Doctor of Philosophy (PhD)

The PhD in Counseling Psychology or Educational Psychology and Research is offered by the Department of Counseling, Educational Psychology, and Research. It is designed to meet the needs of candidates who wish to seek licensing as counseling psychologists or candidates preparing for research and college faculty positions.

Admission to Post-Master's Candidacy

Admission to the EdS, EdD, and PhD programs is handled by the department in which the student wishes to concentrate. After completion of the department's candidacy file, the department admissions committee will act on the application and notify the student of its action.

Appointment of Advisory Committee

When admitted to candidacy, the student should consult with the department chair and the temporary advisor in order to secure the appointment of a permanent major advisor who will also serve as chair of the program advisory committee. The department chair, following consultation with the student and the major advisor, will make a recommendation to the Assistant Dean for Graduate Studies concerning the appointment of a graduate program advisory committee to assist the student in planning a complete program of studies. Upon approval by the Assistant Dean for Graduate Studies, the appointment will be forwarded to the Dean of the Graduate School.

The student's program advisory committee for the EdS, EdD, and PhD degrees shall be composed of at least three members. Each committee member must be a member of the Graduate Faculty at The University of Memphis.

PROGRAM OF STUDIES

All programs of study for the EdS, EdD, and PhD degrees are individually designed by the student and the program advisory committee to accomplish the student's educational goal and ensure mastery of requisite knowledge, skills, and dispositions for the discipline.

Time Limitations

Each student, in consultation with the program advisory committee, will plan a complete program of studies. The program of studies must be placed on file with the Assistant Dean for Graduate Studies before the end of the semester immediately following admission to the program. No doctoral student may be considered as officially in residency unless the student has filed a program of studies, signed by the program advisory committee.

The student's program of studies for the EdS degree must include a minimum of 33 semester hours earned no more than six years prior to the date of graduation.

The student's program of studies for the EdD or PhD degree must include a minimum of 54 semester hours earned no more than ten years prior to the date of graduation.

Acceptance of Transfer Credit

Credit earned at another institution must be presented for consideration not later than the end of the student's second semester of enrollment. Upon approval by the student's program advisory committee, the credit will be transferred to apply toward the EdS, EdD, or PhD, provided that the credit meets the general University and specific program requirements.

Approved transfer credit may be accepted for not more than 6 semester hours of post-master's degree course credit for the EdS degree and 12 semester hours of post-master's degree credit for the EdD or PhD degree.

Other Requirements

The maximum combined credit in Independent Study and "Workshop" courses that can be applied to EdS degree requirements is 9 semester hours.

The maximum combined credit in Independent Study and "Workshop" courses that can be applied to the EdD degree requirements is 18 semester hours.

Planning the Program

Minimum requirements for the Education Specialist degree are:

Major

Content for Specialty 21 hours (Including 6 hours culminating experience)

College Core 6 hours (Complete one three-hour course in research* and one three-hour course in educational psychology appropriate to the area of study)

Electives 6 hours

Total 33 hours

Minimum requirements for the Doctor of Education degree are:

Major

Content for Specialty 42-45 hours (Includes 9-12 hours dissertation)

Research Core* 9-12 hours (EDPR 8541, 8542 and 3-6 hours of research electives)

Total 54 hours

**A master's level introduction or research course is assumed (EDPR 7521 or 7523).*

Changes in Program of Studies

Any changes to be made in a program of studies must be submitted on the appropriate form and must have the approval of the program advisory committee, the department chair, and the Assistant Dean for Graduate Studies.

RESIDENCY

Students working toward the doctoral degree must fulfill the University and College residency requirement after filing a program of studies.

Purpose

The purpose of residency is to provide the doctoral student with significant time for sustained contact with faculty members. An expected outcome is the acquisition of skills of inquiry, an opportunity for research, and the incorporation of professional values into the experience that the student brings to graduate school. Also, it facilitates the creation of a cohesive climate in which inquiry becomes the linking feature of the graduate student experience. In short, residency is expected to be a vehicle for socialization into the shared community of professional life. At the heart of that community lies a commitment to sustained inquiry that extends beyond the period of doctoral preparation and into the student's lifetime work, either as a practitioner or as one who demonstrates leadership based on a foundation of inquiry.

Doctoral Residency Policies

1. A doctoral student must select one of the following course enrollment options:
 - a. The student will maintain two semesters of continuous enrollment of 9 hours per semester. The enrollment requirement may be satisfied by enrolling in fall, spring, and summer semesters.
 - b. Three semesters of continuous enrollment of 6 hours per semester;
 - c. Nine hours of enrollment per semester during two consecutive summers and at least 3 hours per semester during the intervening fall and spring semesters.
2. A plan for the scholarly product of residency will be developed by the student and major professor. The plan will be reviewed by the department.
3. The scholarly product plan of residency consists of the following elements:
 - a. The plan will be contained in a 3-5 page document.
 - b. It will contain an introduction to the problem area that the student will address during the coming period of residency. This introduction will include a specification of the problem, an indication of its importance, and a brief summary of pertinent literature placing the problem in its context. Relevant theoretical implications will be noted.
 - c. It will detail a plan of action including projected time benchmarks to resolve the problem. It is expected that this plan will allow for a sustained and multifaceted inquiry that incorporates significant components derived from the literature and that have implications for the field of study.
 - d. Tools of inquiry expected to be required in the course of completing the residency will be noted. If the candidate possesses these tools, some indication documenting the mastery of the tool component should be noted. If skills of inquiry are to be acquired during the course of the residency this must be noted.
 - e. Faculty resources associated with each component of the plan must be indicated. It is expected that the student will be in contact with individuals who have been engaged in this area beyond the campus.
 - f. The products of the residency will be noted. It is expected that the residency will lead to a paper submitted to a refereed journal or presented at a peer reviewed conference.
 - g. A copy of the scholarly product of residency that has been approved by the major advisor must be filed with the Assistant Dean for Graduate Studies.
 - h. All research involving data collection, use of existing data, or other investigations using human subjects must be reviewed and approved by the University's Institutional Review Board for the Protection of Human Subjects prior to beginning any such research.

Timetable for Filing for Residency

Prior to beginning residency, the written plan must be filed. The plan must have the approval signatures of the chair of the candidate's program advisory committee and of the department chair. It must be submitted to the department office of the candidate's major for approval no later than the last day of graduate registration in the semester designated to count as residency. Students are expected to have satisfied requirements for admission to the doctoral program before filing a residency plan.

Comprehensive Examination for the EdS, EdD, and PhD Degrees

When the candidate for the EdS, EdD, or PhD degree has completed all course requirements or is enrolled in the last course in the candidate's program of study, exclusive of the culminating experience or dissertation, the candidate must pass a comprehensive exam, written and oral, covering the major and collateral fields of study. For EdD and PhD candidates, residency must be completed prior to taking the comprehensive exams. The student who passes the comprehensive exam will be designated as a Late Doctoral Candidate or Late Specialist candidate in the candidate's degree status.

EDS CULMINATING EXPERIENCE AND DOCTORAL DISSERTATION

The EdS degree candidate will present a six-hour culminating experience appropriate to the major area of specialization. This may be fulfilled through a thesis based on research related to the major, a field study of a significant problem, an organized internship, or a special project appropriate to the major.

An acceptable dissertation is a requirement for all doctoral degrees. The dissertation must embody the results of an extended research effort that is an original contribution. It should reflect the candidate's ability to conduct independent research and interpret in a logical manner the facts and phenomena revealed by the research. The student will be required to meet the specific regulations of the major department and of the Graduate School. The EdD or PhD degree candidate will present a dissertation for 9-12 hours' credit.

Enrollment Requirements

All degree candidates must maintain continuous enrollment of at least one credit hour per semester (Summer school enrollment is optional for continuous enrollment.) once they begin taking field study, culminating experience, or dissertation hours. If they fail to do so, they will be charged retroactive tuition at graduation. Students must be enrolled for at least 3 credit hours in the semester in which they defend.

Credit will be posted upon the completion and acceptance of the culminating experience or dissertation, but no more than 6 hours will be counted toward degree requirements for an EdS culminating experience and no more than 12 hours for a doctoral dissertation.

This requirement may be waived for any semester the advisor is not on campus or for other reasons approved by the major advisor, the department chair, and the Assistant Dean for Graduate Studies of the College of Education.

Failure to remain in continuous enrollment without an approved waiver will result in reevaluation of the candidate's status in the program by the program advisory committee.

Committee Membership for Supervision of the Dissertation

After completing the comprehensive examination, the candidate will form a dissertation advisory committee of at least four graduate faculty members. The dissertation advisory committee will direct the development of the candidate's prospectus, dissertation, and defense. The chair (major professor) must be a full graduate faculty member from the candidate's

area of concentration within the major. At least one other committee member must be a faculty member in the candidate's major. The department chair, following consultation with the candidate and the major advisor, will make a recommendation to the Assistant Dean for Graduate Studies concerning the appointment of the dissertation advisory committee.

Doctoral Prospectus

In order to provide a relatively uniform framework for preparation of a doctoral prospectus, the College of Education has specified a format to be followed in its preparation. Copies of the format may be obtained from the major advisor or from the office of the Assistant Dean for Graduate Studies.

Once a prospectus is approved, it is expected that the study will be completed within three years; if not, the program advisory committee will reevaluate the candidate's status in the program.

"Early doctoral student" designation applies to all doctoral candidates from the time of formal admission to candidacy in the College of Education until the time of completion of course work and passing the comprehensive exam. At that time the candidate is redesignated as "late doctoral student."

Culminating Experience/Dissertation Guidelines

Culminating experiences and dissertations must be prepared according to guidelines specified by the College. For specific information, the student should consult his/her major advisor.

Final Examination (Culminating Experience/Dissertation Defense)

After the completion of the culminating experience/dissertation and all other prescribed work for the degree, all candidates will be given a final oral examination dealing primarily with the culminating experience/dissertation and its relation to the candidate's major field of study. This exam will be conducted by the student's culminating experience/dissertation advisory committee.

GRADUATE ASSISTANTSHIPS

Graduate assistantships for post-master's students are available in most of the academic areas of the College of Education, and a limited number of graduate assistantships for master's students are available.

Active work and satisfactory progress toward a degree are necessary to hold an assistantship, and graduate assistants are required to be registered in each term in which they hold assistantships. Full-time graduate assistants take twelve hours of course work per semester (six hours if they are enrolled for thesis or dissertation hours) and serve 20 hours per week on the assistantships.

Permission for graduate assistants to take fewer than twelve credit hours in a semester may be granted by the College of Education Assistant Dean for Graduate Studies upon the recommendation of the department chair. Permission to take more than twelve hours may be granted upon recommendation of the department chair and the College of Education Assistant Dean for Graduate Studies.

CONSUMER SCIENCE AND EDUCATION

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Chair and Coordinator of Graduate Studies

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MEMBERS

- LINDA E. CLEMENS, *Professor*
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DIXIE R. CRASE, *Professor*
PhD (1967), Ohio State University [2006]
CAROL MITCHELL, *Professor*
PhD (1977), Texas Women's University [2007]
ROBIN R. ROACH, *Associate Professor*
EdD (1989), Vanderbilt University [2002]
PAT M. STEVENS, *Associate Professor*
EdD (1988), Mississippi State University [2007]

ASSOCIATE MEMBER

- TERRA SMITH, *Assistant Professor*
PhD (1997), Oklahoma State University [2003]

ADJUNCT MEMBERS

- CYNTHIA K. BUFFINGTON
PhD (1978), University of Texas-Austin [2003]
GEORGE S. M. COWAN
MD (1964), University of Aberdeen, Scotland [2003]
DIANNE K. POLLY
JD (1996), The University of Memphis [2002]
DEBORAH SLAWSON
MS (1990), Memphis State University [2002]
MARY ANN SMITH
PhD (1965), The University of Tennessee-Knoxville [2003]
RETA J. ZABEL
PhD (1998), Texas Women's College [2001]

AFFILIATE MEMBERS

- AMY C. CASSIDY
MS (1997), University of Southern Mississippi [2002]
REBECCA A. COOK
MS (1990), Indiana University-South Bend [2004]
CASSANDRA DOBBS
MS (1985), Memphis state University [2002]
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MS (1970), University of Tennessee-Knoxville [2002]
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MS (1989), Memphis State University [2002]
CATHERINE K. REAVES
MS (1980), Case Western Reserve University [2002]
KAREN RINGWALD-SMITH
MS (1996), University of Memphis [2002]
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MS (1989), Memphis State University [2002]
KIM J. STEWART
MS (1992), Memphis State University [2002]
MARIA M. SUN
MS (1997), University of Memphis [2004]
HARRIET C. SURPRISE
MS (1994), University of Memphis [2002]

JANET L. TODD

MS (1996), University of Memphis [2002]

LINDA M. WALKER

MS (1992), Memphis State University [2002]

HEIDI A. WEST

MS (1999), University of Memphis [2002]

MARGARET R. WILLIAMS

EdD (2000), University of Memphis [2002]

- I. The purpose of the Master of Science with a major in Consumer Science and Education is to provide an advanced educational option for both school personnel and other individuals preparing for, or pursuing, careers based on family and consumer sciences and marketing education subject matter. This degree serves all disciplines in family and consumer sciences and marketing education in an integrative, interdisciplinary advanced program that allows individualization.

The Department also offers the Master of Science degree with a major in Clinical Nutrition.

II. MS Degree Program - Major in Consumer Science and Education

A. Program Prerequisites

1. Completion of an undergraduate major in one of the several specific areas of home economics or a closely allied field such as marketing, art, or science.
2. Completion of application procedures for admission to the Graduate School.
3. Satisfactory performance on the Graduate Record Exam.
4. Satisfactory undergraduate grade point average.
5. Completion of academic deficiencies in course work if, after faculty evaluation of transcripts, it is deemed necessary.

B. Program Requirements

1. A total of 36 semester hours is required of all students, six hours of which must include either thesis or internship in one specific area of Consumer Science and Education.
 - a. Eighteen semester hours are required in the major as a departmental core and consist of the following courses:
CSED 7212 Applied Nutrition for Health (3)
CSED 7600 Entrepreneurship in Consumer Science and Education (3)
CSED 7700 Professional Practices in Consumer Science and Education (3)
CSED 7800 Consumer Issues: Family Systems Management (3)
CSED 7996 Thesis (6)
or
CSED 7400-7407 Internship in Consumer Science and Education (6)
 - b. A minimum of nine semester hours of 7000 level course work supportive of the major must be taken in a collateral area either outside or within the Department.
 - c. A minimum of nine semester hours of required research-related electives to include:
ID&T 7060 Microcomputers and Learning (3)
or
EDPR 7531 Computer as a Research Tool (3)
and
EDPR 7521 Introduction to Educational Research (3)
EDPR 7541 Statistical Methods Applied to Education (3)
2. Successful completion of a written comprehensive examination for all students. Successful completion of an oral thesis defense for those electing the thesis option. Successful completion of an exit interview and/or presentation for those electing the internship option.

III. MS Degree Program - Major in Clinical Nutrition

Enrollment is limited to 8 to 12 students per year.

A. Program Prerequisites

1. Completion of an undergraduate major in foods and/or nutrition to include an American Dietetics Association (ADA) approved Didactic Program in Dietetics.
2. Acceptable undergraduate grade point average.
3. Acceptable scores on the Graduate Record Examination or on the Miller Analogies Test.
4. Completion of application procedures for admission to Graduate School.
5. Demonstration of interest in the field of clinical nutrition by letter, documentation of work experiences, and evidence of above average performance documented by letters of reference.
6. An additional program fee is required for the internship.

B. Program Requirements

1. Coursework must be taken in sequence.
2. A total of 48 hours is required for completion of this major, six hours of which must be thesis and 12 hours of which must be internship and residency.
 - a. Twenty-four hours are required in the major as core and consist of the following courses:
CSED 7202 Current Issues in Foods and Nutrition (3)
CSED 7205 Nutrition Assessment (3)
CSED 7412 Cellular Nutrition I (3)
CSED 7422 Cellular Nutrition II (3)
CSED 7432 Nutrition and the life Cycle I: Maternal, Infant, and Child Nutrition (3)

- CSED 7433 Nutrition and the Life Cycle II: Adolescent, Adult, and Geriatric Nutrition (3)
 CSED 7442 Clinical Nutrition Administration (3)
 CSED 7522 Advanced Food Systems Management (3)
- b. Twelve hours are required as a research collateral and include the following courses:
 EDPR 7521 Introduction to Educational Research (3)
 or
 EDPR 7523 Applied Educational Research (3)
 EDPR 7541 Statistical Methods Applied to Education (3)
 CSED 7996 Thesis (6)
- c. Twelve hours are required as a clinical internship component that includes nine hours for the ADA developmentally accredited dietetic internship and three hours of advanced clinical practice. The required courses include:
 CSED 7452 Clinical Internship I (3)
 CSED 7462 Clinical Internship II (3)
 CSED 7472 Clinical Internship III (3)
 CSED 7482 Clinical Residency (3)
- d. The student entering the program, having completed an ADA accredited dietetic internship with proof of registration as a dietitian, may waive Clinical Nutrition Internship I, II, and III.
3. Successful completion of a written comprehensive exam.
 4. Oral defense of thesis.

CONSUMER SCIENCE AND EDUCATION (CSED)

- 6101. Preschool Curriculum.** (3). (HMEC 6101). Application of child development principles to program planning; infancy through four years of age.
- 6204. Furnishings Problems and Presentations.** (3). (HMEC 6204). Problems in planning, coordinating and purchasing of home furnishings. PREREQUISITE: HMEC 2004, 4304 or CSED 2004, 4304.
- 6205. Behavioral Science Aspects of Clothing.** (3). (HMEC 6205). Interdisciplinary study of clothing and appearance: concepts, methodologies, and applications of behavioral science to clothing.
- 6300. Family Resource Management.** (3). (HMEC 6300). Investigates values, goals, and human and material resources necessary for individuals and families to make informed management decisions throughout the life span.
- 6304. Trends in Housing and Home Furnishings.** (3). (HMEC 6304). Major trends and influences on contemporary residential furnishings as these affect home furnishings merchandising. PREREQUISITE: HMEC 2104 OR CSED 2104.
- 6383. Materials and Methods in Family and Consumer Sciences Economics.** (3). (HMEC 6383). Methods in high school subjects with an emphasis in Consumer Science and Education instruction; open to graduate or transfer students seeking update or initial certification. PREREQUISITE: Permission of instructor.
- 6393. Occupational Methods in Family and Consumer Sciences Education.** (3). (HMEC 6393). Special emphasis on instructional strategies and evaluation through classroom and on-site participation. PREREQUISITE: CSED 4383 or 6383 and permission of instructor.
- 6405. Textiles.** (3). (HMEC 6405). Selection, use, and care of textiles related to properties of fibers, yarn structures, fabric construction, and finishes; morphology and chemistry of fibers, finishes, dyes, fabric maintenance, and procedure involved in fiber, yarn, and fabric identification.
- 6602. Community Nutrition.** (3). (HMEC 6602). Nutritional problems and practices of various ethnic, age, and socioeconomic groups; study of the community and agencies concerned with meeting these needs. PREREQUISITE: HMEC 2202 or CSED 2202 or permission of instructor.
- 6702. Food Production Internship.** (3). (HMEC 6702-001). Supervised field experience in an area of food production and service preparation for ServSafe, a food safety and sanitation certification.
- †6712. Clinical Nutrition Internship.** (3). (HMEC 6712). Supervised field experience in clinical nutrition. PREREQUISITE: HMEC 4102 or CSED 4102.
- 6722. Catering Internship.** (3). (HMEC 6702-002). Supervised field experience in catering. PREREQUISITES: HMEC 3602, 4502 or CSED 3602, 4502.
- †6900. Study Tour in Consumer Science and Education.** (1-3). (HMEC 6900-000). On-the-scene knowledge about general Consumer Science and Education. May be repeated for a maximum of 6 credit hours.
- Only 6 hours applicable to degree. PREREQUISITE: Permission of instructor.
- 6902. Study Tour in Foods and Nutrition.** (1-3). (HMEC 6900-002). On-the-scene knowledge about foods and nutrition. May be repeated for a maximum of 6 credit hours. Only 6 hours applicable to degree. PREREQUISITE: Permission of instructor.
- 6904. Study Tour in Housing and Home Furnishings.** (1-3). (HMEC 7904). On-the-scene knowledge about housing and home furnishings. May be repeated for a maximum of 6 credit hours. Only 6 hours applicable to degree. PREREQUISITE: Permission of instructor.
- 6906. Study Tour in Fashion Merchandising.** (1-3). (HMEC 6900-006). On-the-scene knowledge about fashion merchandising. May be repeated for a maximum of 6 credit hours. Only 6 hours applicable to degree. PREREQUISITE: Permission of instructor.
- 7202. Current Issues in Foods and Nutrition.** (3). (HMEC 7202). Review and analysis of current research, trends, and issues in area of foods and nutrition. PREREQUISITES: HMEC 4402, 4802, or CSED 4402, 4802, and CHEM 4512.
- 7205. Nutrition Assessment.** (3). Didactic and laboratory methods in the selection, performance, and interpretation of nutrition assessment techniques. PREREQUISITES: CSED 4402; CHEM 4512.
- 7212. Applied Nutrition for Health.** (3). (HMEC 7212). Basic principles of nutrition and their applications to health and fitness. Not applicable to nutrition concentration.
- 7300. Independent Study in Consumer Science and Education.** (1-3). (HMEC 7300). Opportunity for creative, directed, independent study in a specific area of Consumer Science and Education. Available to provide breadth and/or depth to the student's program of study. May be repeated for a maximum of 3 credit hours. PREREQUISITE: Consent of instructor.
- †7312. Internship in Child Care Services.** (3). (HMEC 7311). Materials, methods, and coordination of work experiences for occupational Home Economics including supervised on-the-job experience in a selected occupational area (child care services) for the teacher. PREREQUISITES: HMEC 2102, 6101, 7393 or CSED 2102, 6101, 7393, or their equivalents.
- †7313. Internship in Food Service.** (3). (HMEC 7312). Materials, methods, and coordinating of work experiences for occupational Home Economics including supervised on-the-job experience in a selected occupational area (food service) for the teacher. PREREQUISITES: HMEC 2202, 3302, 4202, 6502, 7393 OR CSED 2202, 3302, 4202, 6502, 7393, or their equivalents.
- 7393. Seminar in Vocational Family and Consumer Sciences.** (1-3). (HMEC 7393). Analysis of the philosophy, curriculum, operation, and evaluation of vocational programs in family and consumer sciences with scope and direction based on Federal Vocational Legislation and State Department of Education: Rules and Regulations.
- †7400. Internship in Consumer Science and Education.** (3-9). (HMEC 7302). Supervised field experience in a selected area of Consumer Science and Education. PREREQUISITE: Permission of Department Chair.
- †7401. Internship in Child and Family Studies.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.
- †7402. Internship in Nutrition Education and Food Systems.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.
- †7403. Internship in Family and Consumer Sciences.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.
- †7404. Internship in Housing/Home Furnishings.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.
- †7405. Internship in the Fashion Industry.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.
- †7406. Internship in Marketing Education.** (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.

†7407. Internship in Nutrition. (3-9). (HMEC 7302). Supervised field experience. PREREQUISITE: Permission of Department Chair.

7412. Cellular Nutrition I. (3). (HMEC 7412). Generation, storage, and use of energy; metabolism of carbohydrate, protein, fat, and other macro and micronutrients; control of metabolic processes in normal, anabolic, and catabolic conditions. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements or permission of instructor.

7420-29 Workshops in Consumer Science and Education. (3). (HMEC 7420-29). Designed to respond to needs and interests of students in Consumer Science and Education. Specific titles of workshops vary.

7422. Cellular Nutrition II. (3). (HMEC 7422). Cellular and subcellular metabolism of the micro-nutrients; digestion, absorption, transport, utilization, and excretion of vitamins and minerals; interrelationships of micro- and macronutrients; recent advances in micronutrient research. PREREQUISITE: Student must meet the ADA Didactic Program in Dietetics requirements or permission of instructor.

7432. Nutrition and the Life Cycle I: Maternal, Infant, and Child Nutrition. (3). (HMEC 7432). Food, nutrition, and human behavior in the development of individuals from conception through childhood; economic, social, and environmental bases for intervention in development of food habits and modification of diet in treatment and prevention of disease and disability; nutritional assessment methods appropriate for this age span. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements or permission of instructor. COREQUISITE: HMEC 7452 or CSED 7452.

7433. Nutrition and the Life Cycle II: Adolescent, Adult, and Geriatric Nutrition. (3). (HMEC 7433). Food, nutrition, and behavior in the life span from adolescence throughout life; economic, social, and environmental bases for intervention in the development of food habits and modification of diet in the treatment and prevention of disease and disability; nutritional assessment methods appropriate for this age span. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements or permission of instructor. COREQUISITE: HMEC 7462 or CSED 7462.

7442. Clinical Nutrition Administration. (3). (HMEC 7442). Models and approaches used in the organization and management of health and nutrition clinical and community based programs; entrepreneurial nutrition/dietetics program development; leadership in organizational technology; clinical nutrition research methods; and grant writing. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements. COREQUISITE: HMEC 7472 or CSED 7472.

7452. Clinical Internship I. (3). (HMEC 7452). Directed clinical practice in health care settings serving infants, children, and women during pregnancy and lactation. Emphasis on nutrition in normal growth and development, women's health during reproduction, lactation, and social support in achieving health and human development. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements. COREQUISITE: HMEC 7432 or CSED 7432.

7462. Clinical Internship II. (3). (HMEC 7462). Directed clinical practice in health care settings serving adolescents, adults, and elderly persons. Emphasis on nutrition in wellness and maintenance of health in aging as well as prevention and treatment of disease and disability and social support in achieving health and human development. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements. COREQUISITE: HMEC 7492 or CSED 7492.

7472. Clinical Internship III. (3). (HMEC 7472). Directed clinical experience in the administration of nutrition services including food service systems, clinical and community nutrition service delivery systems, clinical research programs, and health promotion programs. Includes four-week culminating experience requirement for dietetic internship program. PREREQUISITE: Student must meet ADA Didactic Program in Dietetics requirements. COREQUISITES: CSED 7442, 7522.

7482. Clinical Residency. (3). (HMEC 7482). Individualized clinical experience designed at advanced level to enhance self-direction in learning and to develop advanced competence in various areas of foods and nutrition practice and/or management with an emphasis on services delivery, teaching, and research. PREREQUISITE: Student must have completed an ADA accredited dietetic internship.

7500-7509. Special Topics in Consumer Science and Education. (1-3). (HMEC 7500-7509). Current topics in areas of Consumer Science and Education. May be repeated with change in content. See *Schedule of Classes* for topic.

7522. Advanced Food Systems Management. (3). (HMEC 7520). Detailed overview of current food service management systems with particular emphasis on hospital system internships. PREREQUISITE: HMEC 6502 or CSED 6502.

7600. Entrepreneurship in Consumer Science and Education. (3). Principles involved in initiating, managing, and accepting risks associated with entrepreneurial pursuits as applied to consumer science and education disciplines, e.g. private practice, consulting, technical assistance, and educational services; and operation of shops, day care centers, food service establishments, and boutiques.

7700. Professional Practices in Consumer Science and Education. (3). Adaptation and implementation of current professional strategies with focus on the development of written, verbal, and visual skills.

7800. Consumer Issues: Family Systems Management. (3). Utilizes a systems approach in the analysis of consumer issues from a managerial perspective with emphasis on major family situations across the life cycle.

†7996. Thesis. (1-6). (HMEC 7996).

†Grades of S, U, or IP will be given.

MARKETING EDUCATION

The Department of Consumer Science and Education offers graduate study leading to a Master of Science degree. Marketing education courses with MKED prefixes are available to provide the 7000 level required collateral.

MARKETING EDUCATION (MKED)

7010. Cooperative Occupational Education. (3). (MKED 6610). Study of occupational education programs which use work experience coordinated with related in-school instruction to provide clear preparation in vocational education. (*Spring semester only*)

7630. Instructional Development in Marketing, Merchandising, and Management. (3). Developing instructional materials and techniques for high school and post-secondary marketing education programs. PREREQUISITE: MKED 7010 and 7641. (*Fall semester only.*)

7641. Techniques of Coordination in Marketing Education. (3). (MKED 6641). Selecting training agencies; developing job analyses; selecting and briefing the training supervisor; selecting and working with advisory committees; utilizing other community and resources.

7650. Research Problems in Marketing Education. (1-3). Individual investigation and reports of research problems. PREREQUISITE: Permission of instructor.

7690-99. Workshops in Marketing Education. (1-9). (MKED 6690-99). Group study of selected phases of the marketing education program, designed to assist both in-service prospective marketing and distributive education teacher-coordinators in improvement of the teaching-learning processes contained in three phases of program operation: classroom instruction, on-the-job training, and student organization advisement. See *Schedule of Classes* for topic. May be repeated; however, credit applicable to a degree is limited.

7700. Marketing Education Study Tour. (1-3). (MKED 6700). An opportunity to gain on-the-scene knowledge about specific areas of instruction within marketing education. May be repeated for a maximum of 3 credit hours; however, the student should consult with major advisor to determine the maximum credit that may be applied to a degree program. PREREQUISITE: Permission of instructor.

†7993. Occupational Experience Practicum. (1-3). Practical experience in occupational specialty area for certification and/or occupational updating; employment in occupational specialty area; comprehensive research report. PREREQUISITE: Permission of instructor.

†Grades of S, U, or IP will be given.

COUNSELING, EDUCATIONAL PSYCHOLOGY, AND RESEARCH

Room 100, Ball Hall
(901) 678-2841

RONNIE PRIEST, PhD
Chair and Coordinator of Graduate Studies

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MEMBERS

- ROBERT CRAWFORD, *Professor*
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- CORINNA A. ETHINGTON, *Professor*
PhD (1985), Virginia Polytechnic & State University [2006]
- DIANNE HORGAN, *Professor*
PhD (1975), The University of Michigan-Ann Arbor [2006]
- SHARON G. HORNE, *Assistant Professor*
PhD (1998), The University of Georgia [2004]
- YEH HSUEH, *Assistant Professor*
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- THOMAS V. SAYGER, *Associate Professor*
PhD (1987), Indiana State University [2006]
- JOHN C. SMART, *Professor*
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PhD (1986), University of North Texas [2003]

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DA, PE (1977), Middle Tennessee State University [2004]

- I. A. The Department of Counseling, Educational Psychology, and Research offers graduate degree programs in three program areas: MS and EdD degrees in Counseling and Personnel Services, MS and PhD degrees in Educational Psychology and Research, and a PhD degree in Counseling Psychology. Admission to each of these programs is handled separately. Each has its own admission criteria, and application must be made for a particular program before an applicant is considered for that program. Any person admitted to one of these programs who desires to transfer to another program within the department must make formal application to that program and will be evaluated competitively against the same criteria and on the same time schedule as all other applicants for that program. The time to degree completion for the EdD degree in Counseling and Personnel Services, the PhD degree in Educational Psychology and Research, and the PhD degree in Counseling Psychology is limited to 10 years, an exception to the general Graduate School policy.

The departmental objective is to prepare advanced educational leaders to be both sophisticated practitioners and researchers. Programs in Counseling and Personnel Service and Counseling Psychology have a strong scientist-practitioner base. Programs in Educational Psychology and Research have a strong research emphasis. The graduate degrees within the department will qualify students as university and college teachers, counselors, psychologists, program evaluators, and researchers in educational and counseling environments, as well as provide them with the skills necessary to fill a variety of roles in other settings in which knowledge of human development, learning and cognition, research and evaluation methods is essential.

- B. All graduate students within the department will demonstrate generalized competency in core areas of psychological inquiry. Generalized competency may be demonstrated either by passing examinations or completing designated coursework in three of the four general domains:
 1. Research methods and data analysis
 2. Measurement and evaluation
 3. Human development
 4. Learning and cognition

II. MS Degree Programs

Major: Counseling and Personnel Services

Concentrations:

- Community Agency Counseling
- Rehabilitation Counseling
- School Counseling
- Student Personnel Services

The Master's degree programs in Counseling and Personnel Services prepare entry level counseling professionals with a broad knowledge base in fundamental social/behavioral science (human development, learning and cognition, personality theory, and emerging research on visible ethnic populations and gender differences), counseling and helping skills (individual and group counseling, and assessment), research and evaluation tools, and professional identity, role and function. The concentrations in Community Agency Counseling, School Counseling and Student Personnel Services are accredited by the Council of Accreditation of Counseling and Related Educational Programs (CACREP). The Rehabilitation Counseling concentration is accredited by the Council of Rehabilitation Counseling (CORE).

A. Program Prerequisites

Students need 6 semester hours of course work at the upper division undergraduate or the graduate level in psychological or cultural foundations.

B. Program Admission

1. Applicants must apply to the Graduate School and to the program. The Master of Science degree in Counseling is a limited access program; not all eligible candidates are admitted. To be considered for admission, applicants must provide:
 - a. official undergraduate and/or graduate transcripts of all academic work completed,
 - b. submit a Graduate Record Exam (GRE) score,
 - c. complete a program admission application including appropriate goals essay,
 - d. provide three letters of academic and/or professional reference,
 - e. undergo an interview with the faculty, and
 - f. submit a writing sample.
2. Deadline for the completion of all admissions requirements is April 1 for the fall semester and November 1 for the spring semester. The program selection committee selects students after all application

materials and the personal interview are completed. Program admissions forms are available in the department office.

C. Program Requirements

1. All programs are a minimum of 48 semester hours.
2. Demonstrated competency in at least 3 of the 4 department core areas: human development, research methods, assessment, and learning and cognition.
3. MS program core (9 hours): COUN 7531, COUN 7551, EDPR 7521 or EDPR 7523.
4. All students are to maintain good standing (3.0 or better grades) in all required courses.
5. Concentration requirements:
 - a. Community Agency Counseling (39 hours): COUN 7411, 7541, 7561, 7571, 7630 and EDPR 7117; 9 semester hours forming a focal area within community counseling; practicum COUN 7631 (3 hours) and internship COUN 7632 (6 hours); 3 hour elective.
 - b. Rehabilitation Counseling (39 hours): COUN 7411, 7541, 7571, 7750, 7901, 7903, 7911, 7921; 6 hours of electives approved by advisor; practicum COUN 7941 (3 hours) and internship COUN 7942 (6 hours).
 - c. School Counseling (39 hours): COUN 7411, 7541, 7542, 7561, 7571, 7640, and EDPR 7117; 9 hours of supportive electives; practicum COUN 7641 or 7645 (3 hours) and internships COUN 7642 and 7646 (6 hours).
 - d. Student Personnel Services (39 hours): COUN 7411, 7541, 7561, 7571, 7622, 7623, and EDPR 7117; 9 hours of supportive electives; practicum COUN 7625 (3 hours) and internship COUN 7626 (6 hours).
6. All programs include clinical components, practica, and internships and each student's effectiveness will be evaluated by faculty and supervisors. Prior to contact with clients in practicum and internship, students are expected to evidence good judgment and appropriate emotional functioning. Final decisions regarding student effectiveness will be predicated upon factors including course grades, demonstrated clinical competence, personality factors, and any relevant test scores.
7. Written comprehensive examination.

III. MS Degree Programs

Major: Educational Psychology and Research

Concentrations:

Educational Psychology
Educational Research

The Master's degree programs in Educational Psychology and Research prepare educational leaders for scholarly expertise with a knowledge base for critical thinking in human development across the life span, cognitive processes applied to education, educational research methods and statistics.

A. Program Admission

1. Applicants must submit a completed application packet, including:
 - a. application to the Graduate School,
 - b. application to the program,
 - c. official transcripts for undergraduate and graduate studies,
 - d. official report of Graduate Record Examination (GRE) scores,
 - e. a 300-500 word statement of goals and intended area of concentration,
 - f. three letters of recommendation.
2. Applicants to the MS program are evaluated three times a year. All application information must be received by July 1 for fall semester admission, November 1 for spring semester admission, and April 1 for summer semester admission. The admission committee may request a personal interview. Multiple criteria will be used when considering applicant admission, including, but not limited to, undergraduate and graduate grade point average, GRE scores, personal goals statement, relevant employment history, and letters of recommendation. Admission forms are available in the departmental office.

B. Program Requirements

1. All programs are a minimum of 36 semester hours.
2. MS program core (12 credits):
 - a. Research (6 credits): EDPR 7521 or 7523, and 7511 or 7541
 - b. Learning & Cognition (3 credits): EDPR 7121
 - c. Human Development (3 credits): at least one from EDPR 7111, 7112, 7117
3. Concentration in Educational Psychology or Educational Research (15 credits): courses to be taken within the area of concentration will be planned with the major advisor.
4. Electives to be taken outside of the major (6 credits)
5. Research project/thesis (3 credits-EDPR 7000): Each MS student is expected to complete an independent research project or thesis as a culminating experience.
6. MS Comprehensive Examination. Upon completion of coursework each MS degree student will complete a written comprehensive examination covering the domains of research methods and data analysis, measurement and evaluation, human development, and learning and cognition. The exam will be administered by the student's advisory committee and coordinated by the student's advisor. An oral examination may follow if it is deemed necessary by the advisory committee.

IV. EdD Degree Programs

Major: Counseling and Personnel Services

The EdD program in Counseling and Personnel Services is designed to prepare advanced professional practitioners in counseling, student personnel services, and counselor education with particular program emphases on multicultural and urban settings. Entry into the program presumes a master's degree in counseling and personnel services wherein one has acquired knowledge and skills in human development, helping relationships, group counseling, lifestyle and career development, assessment techniques, research and evaluation and clinical experiences in applied settings. The EdD is designed for individuals seeking advanced preparation as educational leaders in the role of professional counselor and researcher and who may seek additional credentials in counselor supervision and counselor education. The EdD is not appropriate for individuals seeking preparation or licensure as a psychologist.

A. Program Prerequisites

A master's degree in counseling that meets CACREP standards for core knowledge and skills. Students with a master's degree in counseling that does not contain all core areas can be considered for admission, but will be required to complete additional coursework prior to enrolling in doctoral level courses.

All applicants need at least six semester hours of graduate work in cultural, historical, or psychological foundations of education.

B. Program Admission

1. Applicants must apply to the Graduate School and to the program. The Doctor of Education degree in Counseling is a limited access program; not all eligible candidates are admitted. To be considered for admission, applicants must:
 - a. provide official undergraduate and graduate transcripts of all academic work completed,
 - b. submit a Graduate Record Exam (GRE) score,
 - c. complete a program admission application including appropriate goals essay,
 - d. provide three letters of academic and/or professional reference,
 - e. undergo an interview with the faculty, and submit a writing sample.
2. The program selections committee selects students after all application materials and the personal interview are completed. Deadline for the completion of all admissions requirements is April 1 for the fall semester and November 1 for the spring semester. Program admissions forms are available in the department office.

C. Program Requirements

1. Thirty (30) semester hours in the major, including COUN 8501, 8510, 8511, 8530, 8750, 8841, and 8885.
2. Nine (9) semester hours in research (EDPR 8541, 8542, and a research elective).
3. 12 semester hours in a specialty (a specialty area such as counselor education, consultation, program evaluation, etc.).
4. 9 semester hours of dissertation.
5. All students must earn at least a 3.0 in all required courses.

V. PhD Degree Programs

Major: Educational Psychology and Research

Concentrations:

Educational Psychology
Educational Research

The PhD degree program in Educational Psychology and Research is designed to prepare advanced educational leaders for university teaching, applied research, or other professional roles in the areas of human development (infant, child, and adolescent development; adult development and aging), learning (motivation and cognitive processes applied to education), educational research methods and statistics, measurement and program evaluation.

Since the purpose of doctoral-level training is to prepare students to conduct research in a specialized area, individuals with no interest in research should not apply to this major.

A. Program Admission

Applicants to the PhD program are evaluated three times a year. Completed application packets must be received by July 1 for fall semester admission, November 1 for spring semester admission, and April 1 for summer admission. The admission committee may request a personal interview. Multiple criteria will be used when considering applicant admission, including, but not limited to, undergraduate and graduate grade point average, GRE scores, personal goals statement, relevant employment history, and letters of recommendation. The number of students admitted to the PhD program will depend on availability of adequate faculty supervision. Admission forms are available in the departmental office. The completed application must include:

1. Letters of recommendation from at least three persons familiar with the applicant's academic background and aptitude for graduate work, specifying in detail the applicant's capabilities for graduate study and for future performance and scholarship.
2. A statement of 500-1000 words indicating the intended area of concentration, the applicant's present interests and career goals, research and applied interests, and prior research and applied experience.
3. A willingness to be interviewed by members of the Educational Psychology & Research faculty, should that be required.

B. Program Requirements

1. Credit Hours. A minimum of 54 hours of graduate credit beyond the master's degree.
2. All students upon admission into the doctoral program need to demonstrate competencies in the four departmental core domains (research methods and data analysis; measurement and evaluation; human development; and learning and cognition) as prerequisites for further coursework. Students may demonstrate their competency by (a) having earned at least a 3.0 in each of the entry level courses (EDPR 7521 or 7523, 7511 or 7551, 7117, 7121) during their master's program, or (b) by passing proficiency exams. Doctoral students with low proficiency in any of these core domains must complete the appropriate entry level course before more advanced coursework. These entry level courses will not count toward the minimum of 54 hours required.
3. Core (24 credits):
 - a. Research (18 credits): EDPR 8541, 8542, 8561, 8543 or 8549 or an approved equivalent, and at least 6 credits of supervised research EDPR 8081. All doctoral degree students are expected to be active in collaborative research with members of the faculty each semester they are enrolled. This includes the research-based residency that must result in a paper submitted to a refereed journal or a refereed professional conference.
 - b. Learning & Cognition (3 credits): at least one from EDPR 8149, 8150, 8151.
 - c. Human Development (3 credits): at least one from EDPR 8111, 8112, 8113, 8114, 8131, 8161.
4. Concentration in Educational Psychology or Educational Research (15 credits): courses to be taken within the area of concentration will be planned with the major advisor.
5. Electives to be taken outside of the major (3 credits).
6. Comprehensive Examination. Upon completion of coursework each doctoral student will complete a written comprehensive examination covering the domains of research methods and data analysis, measurement and evaluation, human development, and learning and cognition. The exam will place emphasis on the student's area of concentration, will be administered by the student's advisory committee and will be coordinated by the student's advisor. An oral examination will follow the written examination.
7. Dissertation and Final Defense (12 credits-EDPR 9000). A dissertation acceptable to the faculty is a requirement for all doctoral students. The dissertation must embody the results of an extended research effort which is an original contribution to the existing body of research within the area of concentration. The dissertation should reflect the candidate's ability to conduct independent research and interpret in a logical manner the facts and phenomena revealed by the research. Upon completion of the dissertation, each student will orally defend the research undertaken.

VI. PhD Degree Programs**Major: Counseling Psychology**

The Counseling Psychology program is fully accredited by the American Psychological Association and prepares psychologists who embody a scientific approach to understanding and working with both specific and general problems in human behavior. The program is interdisciplinary; is organized around the scientist-practitioner model of critical thinking; and is implemented through didactic and experiential activities which emphasize research, development, evaluation, and learning as bases for prevention and remediation that assist persons of all ages and all life styles with improving and optimizing their well-being. The program has sufficient flexibility for students to pursue their own interests.

- A. Program Prerequisites** (or their equivalent) at the masters level: Group Processes, Assessment/Evaluation, Career Counseling, Counseling Theories, Practicum, Research/Data Analysis.

B. Program Admission

A limited number of applicants are admitted once each year only for admission in the Fall semester; applicants for Spring admission are not considered. All application credentials must be received by January 15 for an applicant to be considered. Applicants to the doctoral program in Counseling Psychology must hold a Master's degree (or equivalent) in counseling, psychology, or a related area and often have had substantial work experience. Admission prerequisites (or equivalents) are: Group Processes, Theories of Counseling, Career Counseling, Assessment Techniques, Practicum, and Statistics/Research.

Admission decisions are made on the basis of GRE scores, graduate GPA, personal statement, letters of recommendation, clinical and research experience, and interviews. Competitive GRE scores are required. Minimum GRE scores of 1000 (V+Q) are recommended. The program mean GRE (V+Q) is 1135 and the program mean for graduate GPA is 3.79. A completed application packet will include the following: departmental application, GRE scores, graduate transcripts, four letters of recommendation from persons familiar with the applicant's academic record and potential for graduate study in counseling psychology, and a personal goals statement.

NOTE: Both ETS and the GRE Board have advised that a combined GRE score should not be used as an absolute cutoff for admissions decisions, but rather should be used as part of an overall evaluation of applicants. A recent GRE Board statement reads as follows: "A cutoff score based only on GRE scores should never be used as the sole criterion for denial of

admission." The Counseling Psychology program subscribes to this principle.

C. Program Requirements

1. 15 semester hours in Substantive Psychology including 3 semester hours in each of Biological Bases of Behavior, Social Bases of Behavior, Cognitive-Affective Bases of Behavior, Individual Behavior, History and Systems of Psychology
2. 6 semester hours in Counseling Psychology Professional Issues, CPSY 8101 & 8201
3. 6 semester hours in Psychometric Theory and Methods, PSYC 8803 & 8804
4. 12 semester hours in Research Methods/Data Analysis, EDPR 8541, 8542, 8543; CPSY 8203
5. 15 semester hours in Counseling, CPSY 8102, 8202; COUN 8721, 8750, 8841
6. 6 semester hours in counseling psychology practicum, CPSY 8200. Minimum of 400 clock hours is required.
7. 15 semester hours of Electives in a Concentration
8. Residency Project and Comprehensive Examinations. Upon completion of the core counseling psychology coursework and a research-based residency project, each doctoral student will complete a written comprehensive examination covering the core counseling psychology domains. An oral examination will follow the written examination.
9. 12 semesters hours in Dissertation, CPSY 9000
10. 9 semester hours in Predoctoral Internship, CPSY 8800. A full-time one-year internship in Counseling Psychology in an agency approved by the Director of Training is required. The dissertation prospectus must be approved prior to beginning an internship.

D. Enrollment

The counseling psychology program is a full-time program of study. Candidates for the PhD degree in counseling psychology are expected to carry a minimum of 9 hours credit per semester.

E. Professional Competency

Candidates for the PhD in counseling psychology are specializing in a profession. The PhD degree represents more than the accumulation of the specified number of semester hours credit. The student has responsibility to the public and to the psychology profession to ensure that satisfactory levels of professional and research competencies are attained.

COUNSELING AND PERSONNEL SERVICES (COUN)

Courses numbered 7000 and above are available only to fully admitted department graduate students and students seeking post-master's professional development.

6150. Interpersonal Skills for Educators. (3). (EDSV 6150). Development of human relation skills to enhance educator's ability to interact effectively with people in educational environments.

6611. Introduction to Counseling. (3). Exploration of history, principles and administration of counseling services in community agencies, schools, business, and industry. Survey of applicable counseling services, skills, and techniques.

6781. Strategies for Crisis Intervention. (3). Process of crisis intervention; study and practice in understanding crisis-induced dysfunctional behavior, recognizing crisis situations, and crisis counseling procedures.

6783. Alcohol and Drug Abuse Services. (3). Survey of human services for treating alcoholics and substance abusers; overview of treatment strategies and philosophies.

7006-15. Special Topics in Counseling and Personnel Services. (1-3). Study of current topics in the area of counseling and personnel services. May be repeated with a change in content.

7411. Foundations of Counseling. (3). Introduction to professional roles, responsibilities, and identity of counselor; counseling ethics, credentials, and sociocultural context of counseling.

7531. Group Counseling Processes. (3). Organization and maintenance of effective groups; group participation, projects and readings to aid students in delineating their roles in various group settings. **PREREQUISITE OR COREQUISITE:** COUN 7411.

7541. Theories of Counseling and Personality. (3). (7581-8581). Person-centered, behavioral, cognitive-behavioral, reality, rational-emotive, Gestalt, psychoanalytic, and other appropriate theories; emphasis on theoretical concepts, principles, and dynamics as applied in practice. **PREREQUISITE OR COREQUISITE:** COUN 7411

7542. Theories of Child Counseling and Consulting. (3). (7582-8582). Person-centered, behavioral, and related theories; experiences include

exercises in counseling, consulting, and coordinating with a focus on the elementary school.

7551. Assessment Techniques. (3). (7651-8651). The basic principles, test and non-test appraisal instruments, and skills of diagnosis; selection, use, and interpretation of such instruments appropriate for individual appraisal. PREREQUISITE: EDPR 7511, 7521, or 7523.

7561. Career Counseling. (3). (7661-8661). Process of career development and planning, career and lifestyle counseling, planning, and development. PREREQUISITE OR COREQUISITE: COUN 7411.

7562. Career Development for Children. (3). (7662-8662). The effective use of human resources in the world of work; selection and use of instructional materials and field experiences related to career development; exploration of knowledge and skills needed to support career awareness and exploration in grades K-9.

7571-8571. Clinical Techniques. (3). (7690-8690). Implementation and practice of counseling theories; modeling, practice, and critique of counseling skills. PREREQUISITE: COUN 7411; 7541 or 7542.

7622-8622. College Student Counseling and Development. (3). Study of traditional and non-traditional college students; emphasis on identification of development needs and appropriate counseling approaches.

7623-8623. College Environments. (3). Person-environment interaction theories, campus ecology, impact of college environments on diverse student populations, and higher education environmental assessment techniques. PREREQUISITE: COUN 7622.

7624-8624. Seminar in Student Services in Higher Education. (3). (7673-8673). Designed for students in the field of student services in higher education; explores the varied functions and key issues of the student services division.

†7625. Practicum in Student Services in Higher Education. (3). (7695-8695). Supervised student personnel experiences in such post-secondary educational settings as admissions, financial aids, student activities, residence life, academic advising, career placement and planning, minority student affairs, and adult student services. 150 hours. PREREQUISITE: Program approval.

†7626. Internship in Student Services in Higher Education. (4-6). (7948-8948). Supervised student affairs experience in an appropriate student personnel setting in a post-secondary institution. The student will be involved in service activities for a minimum of 300 (or half-time for 4 hours) or 600 (or full-time for 6 hours). May be repeated by half-time students for a maximum of 8 semester hours. PREREQUISITE: Program approval.

7630-8630. Counseling in Community Settings. (3). Overview of skills and knowledge unique to mental health counselors in community settings; mental health service delivery, community assessment counseling and assessment for mental disorders, and preventative mental health concepts. PREREQUISITE: COUN 7411, 7541.

†7631. Practicum in Community/Mental Health Counseling. (3). (7892-8892). Supervised counseling experience in a community/mental health setting with varied clientele. The student will be involved in individual and group counseling activities appropriate to the setting. 150 hours. PREREQUISITE: Program approval.

†7632. Internship in Community/Mental Health Counseling. (4-6). (7698-8698). Supervised counseling experience in an appropriate community/mental setting. The student will be involved in agency services for a minimum of 300 (or half-time, for 4 hours) or 600 (or full-time, for 6 hours). May be repeated by half-time students for a maximum of 8 semester hours. PREREQUISITE: Program approval.

7640-8640. Principles of School Counseling. (3). Organization and administration of components of counseling services in schools, role and function of the school counselor in K-12 system. PREREQUISITE: COUN 7411.

†7641. Practicum in Elementary School Counseling. (3). (7692-8692). Supervised counseling with elementary age children; group discussions and individual interviews provide the student opportunities to interact with elementary children in a variety of settings; practice in appropriate techniques in interaction with elementary children. 150 hours. PREREQUISITE: Program approval.

†7642. Internship in Elementary School Counseling. (3-6). (7697). Supervised counseling experience in working with elementary school-aged children in education-based activities. The student will be

involved in services for a minimum of 300 (or half-time for 4 hours) or 600 (or full-time for 6 hours). May be repeated by half-time students for a maximum of 6 semester hours. PREREQUISITE: Program approval.

†7645. Practicum in Secondary School Counseling. (3). (7691-8691). Supervised counseling with adolescents; assistance with individuals and groups and practice in providing assistance in educational, occupational, and personal decision making. 150 hours. PREREQUISITE: Program approval.

†7646. Internship in Secondary School Counseling. (3-6). (7696-8696). Supervised counseling experience in working with adolescents in education-based activities. The student will be involved in services for a minimum of 300 (or half-time for 4 hours) or 600 (or full-time for 6 hours). May be repeated by half-time students for a maximum of 6 semester hours. PREREQUISITE: Program approval.

7710-8710. Alcohol/Drug Counseling. (3). Process of counseling alcoholic and drug dependent persons; modalities of treatment, philosophy of treatment and referral. PREREQUISITE: COUN 7541.

7720-8720. Systems Development for Family Therapy. (3). (7780). Systems theory applied to families as a framework for family therapy; analysis of family systems at different stages of the family life cycle; history of family therapy, research, and professional ethical issues. PREREQUISITE: COUN 7541 or permission of instructor.

7721-8721. Theories and Techniques of Family Therapy. (3). (8781). Major approaches to family therapy: structural, Bowenian, strategic, behavioral, communications, experiential, object relations; techniques and assumptions, traditional and current practices. PREREQUISITE: COUN 7720 or permission of instructor.

7722-8722. Couple Counseling and Therapy. (3). (8782). Marital and couple counseling and problem situations; phases of therapy, ethical dilemmas, research methodology in couple/family dysfunction. PREREQUISITE: COUN 7720 or permission of instructor.

7723-8723. Human Sexuality in Counseling and Psychotherapy. (3). Attitudes, values, beliefs, and theoretical concerns related to human sexuality; counseling strategies for individuals and couples regarding sex-related issues.

†7724. Practicum in Marital and Family Therapy. (3-6). (7894-8894). Supervised marital and family counseling experience in an appropriate setting. The student will be involved in services in the setting. 150 hours. PREREQUISITE: Program approval.

†7725. Internship in Marital and Family Counseling. (3-6). (7944-8944). Supervised marital and family counseling experience in an appropriate setting. The student will be involved in all setting services for a minimum of 300 (or half-time for 4 hours) or 600 (or full-time for 6 hours). May be repeated by half-time students for a maximum of 6 semester hours. PREREQUISITE: Program approval.

7730-8730. Crisis Intervention Counseling. (3). Study and practice in understanding crisis theory and crisis-induced dysfunctional behavior, recognizing crisis situations, and the application of crisis intervention methods and strategies to help people in emotional crises return to a state of cognitive, affective, and behavioral equilibrium and functional coping.

7740-8740. Counseling Sexually Victimized Children and Their Families. (3). This course is designed to familiarize students with issues related to counseling sexually victimized children and their families. PREREQUISITE: Major in Counseling or permission of instructor.

7750-8750. Multicultural Counseling. (3). (8784). Theory and research on individual and group multicultural counseling with particular attention to ethnic and racial sectors of society in the US. PREREQUISITE: Major in Counseling or permission of instructor and COUN 7411, 7541.

7751-8751. Gender Issues in Counseling. (3). (8783). Current issues related to counseling women and men including developmental theory, awareness of sex role socialization and biases, and appropriate approaches to counseling women and men. PREREQUISITE: Major in Counseling or permission of instructor.

7752-8752. Counseling Gay, Lesbian, and Bisexual Clients. (3). Gay, lesbian, and bisexual issues in counseling and psychotherapy; affirmative psychotherapy techniques and gay, lesbian, and bisexual issues, including identity formation, homophobic and heterosexism,

relationships, parent and family dynamics, ethnic minorities, religion and morality, gender roles, AIDS/HIV, and suicidal ideation. **PREREQUISITE:** Major in Counseling or permission of instructor.

7760-8760. Gerontological Counseling. (3). (7882-8882). Counseling and developmental theories applied to the aging; experience in the use of appropriate individual and group counseling techniques with the aged with emphasis on crisis situations relating to retirement, relocation, dying, death, survivorship. **PREREQUISITE:** Major in Counseling or permission of instructor.

7770-8770. Consultation Theories and Practices. (3). (7787-8787). Exploration of counselor role as consultant in various settings; development of appropriate skills to interact with client and in applying concepts to practice.

7780-8780. Seminar in Counseling. (1-3). (7672-8672). Devoted to current concerns and methodology in counseling. May be repeated for a maximum of 9 hours credit. **PREREQUISITE:** Major in Counseling or permission of instructor.

7790-8790. Special Problems in Counseling. (1-3). (7993). Individual investigation and report in the area of counseling under the direction of a faculty member. May be repeated for a maximum of 9 hours. **PREREQUISITE:** Major in Counseling or permission of instructor.

7841-8841. Advanced Counseling Theories and Techniques. (3). (CPSY 7784-8784). Critical analysis of selected theories and techniques of counseling; emphasis on a variety of major theories and systems; provides a thorough theoretical base for developing a consistent approach to professional counseling. **PREREQUISITE:** COUN 7541 or 7542 or permission of instructor.

7885-8885. Legal and Ethical Issues in Counseling. (3). (CPSY 7785-8785). Examination of existing and needed legislation affecting counseling and psychology, review of critical court cases; ethical standards of professional counseling and psychological organizations; survey of responsibilities and liabilities. **PREREQUISITE:** Advanced program standing or permission of instructor.

7901. Principles and Techniques of Rehabilitation Counseling. (3). Overview of the broad field of rehabilitation including the philosophical, social, psychological, and legal basis of rehabilitation, professional practice and the counselor's role and function in the rehabilitation process.

7903-8903. Psycho-Social Aspects of Rehabilitation. (3). Theories and research in the area of the social psychological adjustment of disability, including related multicultural and urban factors.

7905-8905. Case Management. (3). Introduction to case management and procedures used in counseling and other human service settings; development of a conceptual understanding of case management, and ability to apply this knowledge to different types of populations and different types of treatment settings.

7911. Medical Aspects of Rehabilitation. (3). Orientation to the medical profession, its specialties and relationship to rehabilitation; a familiarity with basic medical and clinical terminology, a survey of body systems, their basic functions, malfunctions; and the more common diagnostic and treatment procedures.

7921. Vocational Development and Occupational Information Service. (3). Collection, evaluation, and use of occupational, educational, and related information in rehabilitation; familiarity with the development of job descriptions and vocational surveys; study of labor market trends and theories of occupational choice.

†7941. Practicum in Rehabilitation Counseling. (3). Supervised counseling experiences with persons with disabilities; application of appropriate theories, principles, and practices to personal counseling.

†7942. Internship in Rehabilitation Counseling. (3-6). Supervised field experiences in cooperation with the state rehabilitation agency and other human service agencies and facilities.

†7996. Thesis. (1-6). Prospectus must be approved by the faculty committee directing the research study. Application for writing thesis must be filed with the Director of Graduate Studies.

†8000. Specialist Culminating Experience. (1-6). Thesis, internship, field study, or special project designed under the direction of student's committee; serves as capstone experience in the Education Specialist Program.

†8091. Teaching in Counseling for Graduate Assistants. (1-3). Overview and practical demonstrations of the art of teaching in counseling and counseling psychology. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours.

†8092. Research Skills in Counseling for Graduate Assistants. (1-3). Research design, analysis, and methodology in counseling and counseling psychology. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours.

†8093. Administrative Training for Graduate Assistants. (1-3). Overview and practical demonstrations of administrative skills in counseling, counseling psychology, rehabilitation counseling, or educational psychology and research. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours.

8501. Doctoral Seminar in Counseling. (1-3). Professional seminar designed for beginning doctoral students in counseling focusing on the development of professional identity as a leader in counseling; critical philosophical issues; research; new directions in theory and techniques; issues in counselor education and practice. Can be repeated for maximum of 3 credit hours.

8510. Counselor Supervision. (3). (CPSY 7786-8786). Critical analysis of theories of counselor supervision, techniques associated with theories, and assessment of those supervision models; survey of research on counseling supervision issues. **PREREQUISITE:** Doctoral standing and Program approval.

†8511. Practicum in Counseling and Personnel Services. (3). Supervised experience in appropriate settings; the student will be involved in varied supervision activities as needed. 150 hours. **PREREQUISITE:** Program approval.

†8530. Doctoral Internship in Counseling and Personnel Services. (3-12). (7699/8699). Supervise experience in counseling and personnel services; complements course study with on-site professional experience focused on programmatic, career, and individual student goals. **PREREQUISITE:** Program approval.

8831. Advanced Group Processes for Counselors. (3). (CPSY 7731-8731). Advanced study of group processes as applied to counseling and student services; activities, functions, and dynamics of groups will be studied with actual experience and group work included. **PREREQUISITE:** COUN 7531 and advanced standing in Counseling or permission of instructor.

†9000. Doctoral Dissertation. (1-9). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

†Grades of S, U, or IP will be given.

COUNSELING PSYCHOLOGY (CPSY)

7700-8700. Diagnosis and Counseling Interventions for Mental Disorders. (3). Covers assessment and diagnosis of mental disorders utilizing DSM-IV classification system and common counseling approaches for each of the major mental disorders; includes current understandings of the etiology, prevention, and treatment of each mental disorder; differential diagnosis using the DSM-IV manual; counseling approaches and case management; and psychopharmacology. **PREREQUISITE:** Practicum.

8008. Directed Readings in Counseling Psychology. (1-3). Individually directed reading with written report required. May be repeated for maximum of 9 hours. **PREREQUISITE:** Permission of instructor.

†8092. Research Skills in Counseling Psychology for Graduate Assistants. (1-3). Research design, analysis, and methodology in counseling psychology. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours.

8101. Foundations of Counseling Psychology. (3). (7684-8684). Designed to orient students and initiate their identification with the profession of Counseling Psychology; including history and future of Counseling Psychology; current issues in the field; and introduction to research, legal/ethical, and professional standards. **PREREQUISITE:** Enrolled in CPSY program.

8102. Seminar in Group Counseling and Psychotherapy. (3). (8793). Theoretical-philosophical and research base of group counseling and

psychotherapy; supervised application. PREREQUISITE: Doctoral student.

†8200. Counseling Psychology Practicum. (3-6). (8694). Critical analysis of actual counseling interviews; various methods employed for recording and observing counseling sessions such as audio and video tapes and one-way vision screens. PREREQUISITE: Enrolled in CPSY program. May be repeated for maximum of 6 semester hours.

8201. Professional Issues in Counseling Psychology. (3). Focus on professional identity, Counseling Psychology research, and legal/ethical issues; emphasizing professional issues, applications, and reading related to diversity and the urban environment. PREREQUISITE: Enrolled in CPSY program.

8202. Vocational Psychology. (3). (COUN 8769). Analysis of career development theory and research as applied to practice of career counseling; variables affecting career development in diverse populations. PREREQUISITE: COUN 7561 or equivalent.

8203. Seminar in Counseling and Personnel Services Research. (3). (7683-8683). Designed to give the advanced graduate student in counseling and personnel services the opportunity to explore present research and research methodology and to begin to carry out research. PREREQUISITE: Fifteen semester hours of credit in counseling or consent of the instructor.

8501. Counseling Psychology Research. (3). (7790-8790). Supervised practice in developing, designing, conducting, writing, and reporting on a variety of investigative formats in counseling research. May be repeated for a maximum of 12 semester hours. PREREQUISITE: Enrolled in CPSY program or consent of the instructor.

8600. Counseling Psychology Seminar. (1-3). Devoted to current concerns and methodology in Counseling Psychology. May be repeated for a maximum of 9 semester hours. PREREQUISITE: Doctoral student in Counseling, Counseling Psychology or consent of the instructor.

†8800. Predoctoral Internship in Counseling Psychology. (3-6). (8890). Supervised internship in setting accredited by American Psychological Association, e.g., college counseling center, hospital or medical setting, or mental health clinic. May be repeated for maximum of 12 semester hours. PREREQUISITE: Completion of all coursework, comprehensive examinations, and approval of dissertation topic.

†9000. Doctoral Dissertation. (1-12). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

†Grades of S, U, or IP will be given.

EDUCATIONAL PSYCHOLOGY AND RESEARCH (EDPR)

7000. Thesis/Research Project (1-6). (EDFD 7000). Thesis or research project that is presented or published, designed under direction of student's committee, and completed while completing MS degree; capstone experience for Master's degree program. May be repeated for a maximum of 6 credit hours.

7001-06-8001-8006. Special Topics in Educational Psychology and Research. (1-3). (EDFD 7006-7015-8006-8015). Current topics in educational psychology and research. May be repeated with a change in content.

7008-8008. Directed Readings. (1-3). (EDFD 7008). Individually directed reading; written report required, may be repeated for a maximum of 9 credits. PREREQUISITE: Permission of instructor.

†7009-8009. Practicum. (3-6). (EDPS 7109). Supervised experience in application of educational psychology and research principles and procedures for training activities in educational, industrial, or community settings. May be repeated for a maximum of 6 hours. PREREQUISITE: Permission of instructor and approval of major advisor.

7081-8081. Supervised Research. (1-6). (EDFD 7081). Collaborative research with faculty within the major to include planning, design, management, analysis, and reporting of research. May be repeated for a maximum of 12 hours. PREREQUISITE: Minimum of 12 hours in major and permission of instructor

†8091. Teaching in Educational Psychology and Research for Graduate Assistants. (1-3). Overview and practical demonstrations of the art of teaching in educational psychology and research. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

†8092. Research Skills in Educational Psychology for Graduate Assistants. (1-3). Research design, analysis, and methodology in educational psychology and research. Restricted to graduate assistants. May be repeated for a maximum of 3 credit hours. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

†9000. Dissertation. (1-12). (EDFD 9000). Independent research for Doctoral degree. Credit may be earned over a period of several semesters.

†Grades of S, U, or IP will be given.

EDUCATIONAL PSYCHOLOGY (EDPR)

6301. Early Childhood Development for the Beginning Teacher. (3). Philosophy, theory, research, and pedagogy relating to physical, cognitive, social and emotional development of children from birth to eight years of age. PREREQUISITES: Admission to MAT program.

7109-8109. Infant Development. (3). (EDPS 7110-8110). Infancy and toddlerhood from developmental research issues perspective; empirical studies and contemporary issues relating to factors influencing infant development.

7110-8110. Early Childhood Development. (3). Advanced study of methodology, variables, and findings from empirical research relating to early childhood development via contemporary developmental research literature.

7111-8111. Child Psychology Applied to Education. (3). (EDPS 7111-8111). Major theories of child psychology and their implications for educational practices with the preschool and elementary school child.

7112-8112. Adolescent Psychology Applied to Education. (3). (EDPS 7112-8112). Advanced study of theories and research on the physical, psychological, social, cognitive, and cultural aspects of adolescent development; implications for education, treatment, secondary school personnel, and others who live and work with adolescents.

7113-8113. Midlife and Adult Development. (3). (EDPS 7113-8113). Cognitive, emotional, and psychosocial theories and research on middle age and adult development.

7114-8114. Psychology of Aging. (3). (EDPS 7114-8114). Cognitive and psychosocial developmental theories of aging and implications for life-span education.

7115. Child Development for Beginning Teachers. (3). (EDPS 7115). Theories and research on the physical, psychological, social, cognitive, and cultural aspects of early childhood and child development with emphasis on implications for preschool and elementary classroom teacher. Open only to students admitted to licensure programs.

7116. Adolescent Development for Beginning Teachers. (3). (EDPS 7116). Theories and research on physical, psychological, social, cognitive, and cultural aspects of adolescent development with emphasis on implications for the secondary schools and secondary teachers. Open only to students admitted to licensure programs.

7117-8117. Life-Span Human Development. (3). Theories and research on the physical, psychological/emotional, social, cognitive, and cultural aspects of human development across the life span.

7121-8121. Learning and Cognition Applied to Education. (3). (EDPS 7121-8121). Major theories of learning and cognition; emphasis on current research and implications and applications for practitioners.

7131-8131. Culturally Diverse Students: Implications for Education. (3). (EDPS 7131-8131). Cultural differences among American student populations; emphasis on family structure, socialization of children, and cultural influences on student behavior.

7132-8132. Personality Variables in Classroom Teaching. (3). (EDPS 7132-8132). Role of teacher and student personality variables as they influence the teaching/learning process.

7149-8149. Seminar in Cognitive Processes Applied to Education. (3). (EDPS 7149-8149). Information processing, computer simulation of intelligence, critical thinking, memory, problem solving of normal

and atypical learners with applications made for classroom instruction. PREREQUISITE: EDPR 7121.

7150-8150. Motivation. (3). (EDPS 7150-8150). Theoretical and research viewpoints on motivation from cognitive perspective; applications to educational and industrial setting. PREREQUISITE: EDPR 7121 or 7149 or permission of instructor.

7151-8151. Individual Differences in Learning. (3). (EDPS 7151-8151). Theoretical foundations of instructional models designed to adapt learning to individuals; includes programmed instruction, computer-based instruction, competency-based (PSI) models, token economy systems, peer tutoring strategies, and contemporary theoretical models pertaining to behavior modification, aptitude-treatment interactions, and adaptive instruction.

7161-8161. Moral and Ethical Development. (3). (EDPS 7161-8161). Current theory and research on moral and ethical reasoning and development across the life span and educational implications.

7165-8165. Social Development in Children. (3). Current theory and research on children's social development; emphasizing relationships with parents, teachers, siblings, and peers from infancy through adolescence.

8171. Seminar in Human Development. (3). (EDPS 8171). Research issues in human development; specifically focused on adolescence, midlife, aging, and implications across age groups. PREREQUISITE: EDPR 7111, 7112 or 7113 or 7114 or permission of instructor.

EDUCATIONAL RESEARCH (EDPR)

7511-8511. Measurement and Evaluation. (3). (EDRS 7511). Test construction, test statistics, and interpretations and applications of standardized test results.

7512-8512. Psychometric Theory and Educational Application. (3). (EDRS 7512-8512). Psychometric principles and applications to tests, rating scales, questionnaires, and other standardized instruments used in educational research; problems associated with evaluation of items and instruments in terms of reliability and validity. PREREQUISITE: EDPR 7511 and 7541 or permission of instructor.

7521. Introduction to Educational Research. (3). (EDRS 7521). Introduction to major concepts and processes underlying educational research; focus on knowledge necessary for critically appraising published research and preparing students as research consumers.

7522-8522. Advanced Educational Research. (3). (EDRS 7522-8522). Philosophical aspects of the scientific method in education; functions of paradigms, theories and models in inquiry; theory development and validation; major types of analytical, qualitative and descriptive inquiry appropriate to the study of educational phenomena. PREREQUISITE: EDPR 7521 or 7523, and 7541, or permission of instructor.

7523. Applied Educational Research. (3). (EDRS 7523-8523). Conducting and interpreting research concerned with learning and teaching; statistical and research methods, interpretation of literature, report writing, and development of proposal for research project.

7531-8531. Computer as a Research Tool. (3). (EDRS 7531-8531). Computer applications to research processes in education and the behavioral sciences; capabilities and limitations of computers in analysis of educational data; experience in the utilization of various (statistical) library programs. PREREQUISITE: EDPR 7541/8541; or permission of the instructor.

7541-8541. Statistical Methods Applied to Education I. (3). (EDRS 7541-8541). Utilization and interpretation of statistical methods applied to education; topics include frequency distributions, central tendency, variability correlation, linear regression, introduction to probability, normal distribution, interval estimation, hypothesis testing via t-test and chi-square and computer utilization in statistical analysis. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

7542-8542. Statistical Methods Applied to Education II. (3). (EDRS 7542-8542). Includes one-way and two-way analysis of variance, a priori and post hoc tests of significance and an introduction to multiple linear regression; emphasis on student acquisition of practical intermediate univariate analytic and interpretative skills. PREREQUISITE: EDPR 7541 or permission of instructor.

7543-8543. Research Design and Analysis. (3). (EDRS 8543). Includes validity of research designs, complex analysis of variance, and analysis of covariance; emphasis is on practical advanced univariate and analytic and interpretative skills. PREREQUISITE: EDPR 7542 or permission of instructor.

7544-8544. Applications of Multiple Regression in Educational Research. (3). Path models; path analysis, hierarchical linear modeling (HLM); applications of path analytic and HLM techniques in educational research. PREREQUISITE: EDPR 7/8542 or permission of instructor.

7547-8547. Sampling Designs and Survey Research Methods. (3). Examines sampling procedures, design/administration of sample surveys; strategies (simple-random, probability, non-probability, cluster, single and multi-stage), effect of strategy on sampling error, confidentiality/anonymity issues, questionnaire design, interview procedures, item development, question format, preparation of survey data for statistical analysis. PREREQUISITE: EDPR 7/8542 or permission of instructor.

7551-8551. Introduction to Evaluation Systems. (3). (EDRS 7551-8551). Examines procedures and problems in utilization of evaluation and in identifying its purposes; treats the functions and methods of evaluation especially as affected by organizational behavior and political influences; evaluation methodology includes but is not limited to design considerations, data utilization, and concepts and methods of needs assessment. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

7561-8561. Qualitative Methods in Education. (3). (EDRS 7561-8561). Issues, procedures, and problems of conducting qualitative research in educational settings. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

7572-8572. Institutional Research in Education. (3). (EDRS 7572-8572). Techniques of institutional analysis in designing self-studies, evaluating the teaching and learning environment and institutional planning. PREREQUISITE: EDPR 7521 or 7523 or permission of instructor.

8519. Seminar in Educational Measurement. (3). (EDRS 8519). Systematic investigation of advanced topics in the field of educational measurement. A prior course in educational statistics is recommended.

†8529. Seminar in Research Applications for Educators. (3). (EDRS 8529). Systematic investigation of advanced educational research applications. PREREQUISITE: permission of instructor.

8549. Multivariate Methods in Education. (3). (EDRS 8549). Systematic investigation of current multivariate methods in the field of educational statistics. PREREQUISITE: EDPR 7542 or permission of instructor.

†Grades of S, U, or IP will be given

HUMAN MOVEMENT SCIENCES AND EDUCATION

Room 106, Field House
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RALPH C. WILCOX, PhD
Chair

MICHAEL H. HAMRICK, EdD
Coordinator of Graduate Studies and Research

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MEMBERS

- ANDREW C. FRY, Associate Professor
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PhD (1994), Purdue University [2002]
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EdD (1973), The University of Tennessee, Knoxville [2006]

- MICHAEL G. HUFFMAN, *Associate Professor*
PhD (1985), The University of Utah [2004]
- RICHARD L. IRWIN, *Associate Professor*
EdD (1990), The University of Northern Colorado [2006]
- RICHARD B. KREIDER, *Professor*
PhD (1987), The University of Southern Mississippi [2006]
- YUHUA LI, *Associate Professor*
PhD (1994), Texas A & M University [2006]
- JEBOSE OKWUMABUA, *Associate Professor*
PhD (1985), The University of New Mexico [2002]
- FRANK D. ROSATO, *Professor*
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- STEPHEN SANDERS, *Associate Professor*
EdD (1993), Virginia Polytechnic Institute & State University [2005]
- LAWRENCE WEISS, *Professor*
EdD (1979), The University of Georgia [2006]
- RALPH C. WILCOX, *Professor*
PhD (1982), University of Alberta, Canada [2006]

ASSOCIATE MEMBERS

- TAMMY SCHILLING, *Assistant Professor*
PhD (1999), University of North Carolina [2006]
- SHARON VAN OTEGHEN, *Professor*
PED (1973), Indiana University [2006]

ADJUNCT MEMBERS

- DAVID L. ANDREWS
PhD (1993), University of Illinois-Urbana [2004]
- VILMA CINGIENE
PhD (1993), Moscow State University, Lomonosov, Russia [2002]
- MICHAEL GREENWOOD
PhD (1990), Texas Woman's University [2002]
- JUDITH GRIFFIN
MS (1970), Boston University [2001]
- LINDA HALL
PhD (1977), The Ohio State University [2001]
- NANCY LOUGH
EdD (1995) University of Northern Colorado [2002]
- LAWRENCE MCCARTHY
PhD (1993), The Ohio State University [2002]
- BARBARA MCCLANAHAN
EdD (1990), The University of Memphis [2001]
- MARIA L. NEWTON
PhD (1994), Purdue University [2002]
- MARY O'TOOLE
PhD (1980), Temple University [2001]
- PHYLLIS A. RICHE
PhD (1996), The University of Mississippi [2003]

AFFILIATE MEMBER

- JEREMY S. JORDAN, *Visiting Professor*
MS (1995), University of Utah [2004]

I. The Department of Human Movement Sciences and Education offers a Master of Science degree program in Human Movement Science. Concentrations are offered in Exercise and Sport Science, Health Promotion, and Sport and Leisure Commerce.

II. MS Degree Program

A. Admission Requirements

1. An applicant must submit an official transcript for undergraduate and graduate studies, an official report of Graduate Record Examination (GRE) scores, and an application to the Graduate School. An applicant seeking admission to the Sport and Leisure Commerce concentration may opt to take the Graduate Management Admissions Test (GMAT) in lieu of the GRE.
2. An applicant must submit the Departmental Graduate Admission Application Form, two letters of recommendation, and a 300-500 word statement of goals and intended area of concentration directly to the department. (Contact the department's graduate coordinator for admission forms. Departmental application forms are also available online at www.hmse.memphis.edu. Use links: "academic units," "admission procedures" "graduate.") Due to the close mentoring of students by the graduate faculty, admission to the program is limited. To ensure maximal consideration for admission into the program, the following dates are provided: May 1 for summer and fall and November 1 for the spring semester. The admission committee may request a personal interview. Multiple criteria will be used when considering applicant

admission, including, but not limited to, undergraduate and graduate grade point average, GRE/GMAT scores, personal goals statement, relevant employment history, and letters of recommendation.

3. An applicant must have graduated with a minimum baccalaureate GPA of 2.5.
4. Completion of an appropriate undergraduate major and a strong background in science-oriented courses such as anatomy and physiology, health sciences, exercise physiology, kinesiology, sport psychology, and motor learning for Exercise and Sport Science and Health Promotion concentrations; or a background in business management, economics, finance, marketing, public relations, commercial recreation, resort management, and tourism courses for the Sport and Leisure Commerce concentration.
5. Completion of undergraduate work deemed by the concentration committee as prerequisite to graduate courses.

B. Program Requirements

A minimum of 39 hours is required of all students.

1. Program Core (9 hours): EDPR 7523, EDPR 7541, and EXSS 7900, HPRO 7900, or SLC 7900.
2. Concentration requirements:
 - a. Exercise and Sport Science (18 hours): EDPR 7542, EXSS 7123, 7163, 7173, 7201, 7202.
 - b. Health Promotion (21 hours): HPRO 7182, 7702, 7712, 7722, 7800, HMSE 7183, and 7403. Students who are able to demonstrate recent and extensive clinical experience may substitute HPRO 7800 with a guided elective upon written approval of the adviser. This does not reduce the total number of credit hours required for graduation.
 - c. Sport and Leisure Commerce (15 hours): SLC 7321, 7331, 7420, 7440, 7503.
3. Guided electives selected with approval of the adviser:
 - a. Exercise and Sport Science concentration (choose 6 hours): BIOL 6503, 6504, 6511, 6512, 6620, 6630, 7005, 7010, 7031; CSED 7212; EDPR 7531; EXSS 6406, 6603, 6902-11, 7152, 7210/8210, 7220/8220, 7230, 7542/8542, 7722/8722, 7800, 7902-11; HMSE 7183, 7403, PSYC 7208, 7210, 7211.
 - b. Health Promotion Concentration (choose 6 hours): CSED 7212, ECON 7710, EXSS 7173, 7201, 7202, HIAD 7255, HPRO 6401, 6501, 6601, 6902-11, 7152, IDT 7073, SOCI 6541, 7851.
 - c. Sport and Leisure Commerce Concentration (choose 12 hours): Select a minimum of four courses from the following list including at least one course from each of categories A and B, plus two other courses. Category A: SLC 6102-11, 6902-11, 7152, 7341, 7351, 7361, 7371, 7600, 7603, 7605, 7653, 7800, 7902. Category B: JOUR 6328, 6440, 6712, 7400, 7420, 7440, LEAD 7112, 7130, 7150, and 7180, MGMT 7030, 7170, 7220, and MKTG 7060, 7140, 7170, 7213, and 7510.
4. Culminating Experience (3 hours): HMSE 7996 (Thesis) or EXSS 7950 (Exercise and Sport Science concentration), HPRO 7950 (Health Promotion concentration), or SLC 7950 (Sport and Leisure Commerce Concentration).
5. Successful completion of an oral or written comprehensive examination.

C. Program Retention Policy

All MS degree students are regularly monitored for completion of any entry-level deficiencies by graduate faculty.

A department retention committee, comprised of selected graduate faculty, monitors the academic progress of all MS degree students. The committee determines whether or not the student is making sufficient progress and, in case of deficiencies, may recommend additional work or the dismissal of the student from the program. For any student recommended for dismissal, an appeals process is available.

HEALTH PROMOTION (HPRO)

6000. Lifetime Wellness I. (3). Concepts, applications, and assessments for secondary teachers of lifetime wellness, emphasis on personal fitness, disease prevention, and nutrition.

6001. Lifetime Wellness II. (3). Concepts, applications, and assessments for secondary teachers of Lifetime Wellness; emphasis on mental health, safety and first aid, sexuality and family life, and substance use/abuse.

6202-20. Workshops in Health. (1-3). (HLTH 6202-20). Selected phases of health promotion through group study; in-depth study of areas of interest and need for persons in health promotion and related fields.

6401. Death and Dying Education. (3). (HLTH 6203). Examination of dying and death phenomena via cognitive, affective, experiential, and cultural perspectives.

6501. Sexuality Education. (3). (HLTH 6204). Selected phases of human sexuality.

6601. Drug Education. (3). (HLTH 6205). Current issues concerning drug use and abuse including etiology, knowledge base, drug laws, and educational prevention approaches.

6602. Organization and Administration in Public Health. (3). (HLTH 6602). Basic functions, principles, and procedures of organization and administration as applied to health; emphasis on relationship and responsibilities of personnel in planning, promoting, improving, and evaluating the total health activities in family-centered health services. Not offered after December 2001.

6902-11. Special Topics in Health Promotion. (3). Current topics in health promotion. May be repeated with change in topic. See Schedule of Classes for topic.

7012. Evaluation and Utilization of Health Instructional Materials and Media. (3). (HLTH 7012). Analysis, evaluation, and application of health instruction materials and media.

7122. Current Readings in Health Promotion. (3). (HLTH 7122). Directed readings in health promotion; material selected to strengthen areas of study. May be repeated for maximum of 9 credits.

†7142. Seminar in Health Promotion. (1-3). (HLTH 7142). Graduate seminar in health promotion.

7152. Special Problems in Health Promotion. (3). Independent study and/or research project on selected health problems or issues. PREREQUISITE: Permission of instructor.

7182. Health Promotion. (3). (FITW 7182). Development of health promotion programs in community and corporate settings, including assessment of program development, selection of personnel, administrative procedures, evaluation procedures, marketing techniques, and legal issues.

7702. Contemporary Health Issues. (3). (HLTH 7702). Extensive examination of timely and important issues in the health promotion area.

7712. Epidemiology. (3). (HLTH 7712). Introduction to selected diseases of special concern in public health practice with emphasis on epidemiologic models and methods. PREREQUISITE: Introductory statistics, HLTH 7802, EDRS or EDPR 7521, or permission of instructor.

7722. Health Intervention Theories and Applications. (3). (HLTH 7722). Examination of an array of health theories and their applications to relevant health problems and prevention-intervention programs; these theoretical frameworks will be critiqued in some depth.

†7800. Internship in Health Promotion. (3-6). Directed field experience focusing on development of knowledge, skills, and techniques needed to function as health promotion specialist in public or private settings.

†7900. Problem Identification and Research Planning Seminar. (3). The methodology involved in planning, conducting, analyzing, and reporting research associated with health promotion. Prior to completion of the course, specific proposals must be approved by the designated committees for the following: research prospectus, informed consent form if human subjects are to be used in the investigation. PREREQUISITE: Completion of 18 credit hours in the program of study or permission of instructor.

7902-11. Special Topics in Health Promotion. (1-3). (HLTH 7092-11). Current topics in health promotion. May be repeated with a change in topic. See departmental listing in Schedule of Classes for topic.

†7950. Special Project in Health Promotion. (3). A functional study of a topic or problem in health promotion that significantly relates to the student's professional goals. PREREQUISITE: Permission of instructor.

EXERCISE AND SPORT SCIENCE (EXSS)

6403. Kinesiology. (3). (PHED 6403) Analysis of selected anatomic systems as related to purposeful movement of the human body. PREREQUISITES: BIOL 1731 and 1732 or permission of instructor.

6406. Exercise Testing and ECG Interpretation. (3). Introduction to methods of conducting ECG and cardiopulmonary exercise testing for asymptomatic and symptomatic populations; ACSM principles of exercise testing and methods of ECG interpretation.

6603. Advanced Methods of Strength Conditioning. (3). Provides in-depth material on designing resistance exercise programs and the scientific basis for such programs; also covers practical aspects such as exercise technique, safety issues, administration of strength & conditioning programs, and considerations for special populations. No other course covers these concepts, issues in such detail.

6902-11. Special Topics in Exercise and Sport Science. (3). Current topics in Exercise and Sport Science. May be repeated with change in topic. See *Schedule of Classes* for topic.

7123. Mechanical Analysis of Motor Skills. (3). (PHED 7123). Experiences that will enhance the understanding and practical application of the laws of mechanical physics to the fundamental techniques utilized in the performance of physical activities.

7133. Current Readings in Exercise and Sport Science. (3). (PHED 7133). Directed readings in area of exercise and sport science; materials selected to strengthen areas of study. May be repeated for a maximum of 9 credit hours.

†7142. Seminar in Exercise and Sport Science. (1-3). (HLTH 7142). May be repeated for maximum of 3 credits.

7152. Special Problems in Exercise and Sport Science. (3). Independent study and/or research project on selected problems and issues in Exercise and Sport Science. PREREQUISITE: Permission of instructor.

7163. Advanced Motor Learning. (3). (PHED 7163). Analysis of research evidence related to motor skill learning and performance; emphasis on feedback mechanisms, practice variables, and retention and transfer of skills.

7173. Sport and Exercise Psychology. (3) Survey of literature related to psychological aspects of participation in sport, exercise, and physical activity settings.

7201. Physiology of Exercise: Musculoskeletal Aspects. (3). An analysis of the physiological bases of musculoskeletal performance as well as specific adaptations that occur consequent to various regimens of exercise; instruction in selected techniques for assessing musculoskeletal function and structure. PREREQUISITE: EDPR 7523, 7541.

7202. Physiology of Exercise: Metabolic/Cardiorespiratory Aspects. (3). An analysis of the acute and chronic metabolic/cardiorespiratory bases of human performance and fitness under various internal and external environmental conditions; instruction in selected techniques for assessing metabolic/cardiorespiratory function and structure. PREREQUISITE: EDPR 7523, 7541.

7210-8210. Isokinetic Analysis of Muscle Function. (3). Theoretical bases for and applications of isokinetic (velocity-controlled) testing; students will be guided in developing and evaluating new specialized protocols; data analysis and interpretation of same will be stressed. PREREQUISITES: EDPR 7523, EDPR 7541, EXSS 7201.

7220-8220. Advanced Considerations of Skeletal Muscle Structure and Function. (3). In-depth study of the skeletal muscle system; follows EXSS 7201 and covers gross, cellular, and molecular responses and adaptations of skeletal muscle of various types of human exercise; detailed information critical to the graduate student specializing in or interested in human skeletal muscle and exercise.

7542. Advanced Kinesiology. (3). (PHED 7542). Analysis of mechanical factors related to body motions using experimentation and computer analysis of biophysical data; applications-intensive course involving collaboration between a faculty member and one or more students. *Two lectures and three hours of laboratory per week.* PREREQUISITE: EXSS 7523, 7541 or permission of instructor.

†7800. Internship in Exercise and Sport Science. (3). Directed laboratory experience focusing on development of knowledge, skills, and techniques needed to function as Exercise and Sport Science specialist in public or private settings.

†7900. Problem Identification and Research Planning Seminar. (3). Methodology involved in planning, conducting, analyzing, and reporting research associated with exercise and sport science. Prior to completion of the course, specific proposals must be approved by the designated committees for the following: research prospectus; informed consent form if human subjects are to be used in the investigation. PREREQUISITE: Completion of 18 credit hours in the program of study or permission of instructor.

7902-11 Special Topics in Exercise and Sport Science. (1-3). (PHED 7903-13). Current topics in exercise and sport science. May be repeated with a change in topic. See Schedule of Classes for topic.

†7950. Special Project in Exercise and Sport Science. (3). Functional study of a topic or problem in exercise and sport science that significantly relates to student's professional goals. PREREQUISITE: Permission of instructor.

HUMAN MOVEMENT SCIENCES AND EDUCATION (HMSE)

7183. Physical Fitness and Health. (3). Focuses on research pertaining to the relationship of physical exercise to the cardiovascular system, cardiovascular disease, longevity, weight control, and relaxation. Physical work capacity, percent body fat, flexibility, and other factors are measured.

7403. Measurement and Evaluation in Human Movement Sciences. (3). (PHED 7403). Includes selection, application, and evaluation of certain tests appropriate to the Human Movement Sciences.

7620. Teaching Skills in Human Movement Sciences and Education. (3). Overview and practical, demonstrations of the art of teaching for graduate assistants. PREREQUISITE: permission of advisor.

7622. Research Skills in Human Movement Sciences and Education. (3). Research design, practice, and methodology in human movement sciences and education; may be repeated. PREREQUISITE: permission of advisor.

†7996. Thesis (1-6). (FITW/HLTH/PHED /RECR 7996). Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Director of Graduate Studies.

RECREATION (RECR)

7203. Therapeutic Recreation for the Aging. (3). Planning, scheduling, and implementation of therapeutic recreation programs and services for the aging population; emphasis on physical, psychological, intellectual, and sociological qualities affecting recreation programs and services. PREREQUISITE: 7201 or permission of instructor.

SPORT AND LEISURE COMMERCE (SLC)

6102-11. Workshops in Sport and Leisure Commerce. (1-6). (RECR 6705-15). Selected phases of sport and leisure commerce through group study, in-depth study in area of interest and need for leaders in sport and leisure commerce. May be repeated for credit when topic varies.

6902-11. Special Topics in Sport and Leisure Commerce. (1-3). (RECR 6905-15). Current topics in sport and leisure commerce. May be repeated with change in topic. See *Schedule of Classes* for topic.

†7142. Seminar in Sport and Leisure Commerce. (1-3). (RECR 7145). May be repeated for a maximum of 3 credits.

7152. Special Problems in Sport and Leisure Commerce. (1-3). (RECR 7155). Independent study or research, or both, on selected sport and leisure commerce problems and issues. PREREQUISITE: Permission of instructor.

7321. Theoretical Foundations of Sport and Leisure. (3). Influence of historical, philosophical, and social elements upon sport and leisure management policies, practices, and programs. PREREQUISITE: Fully admitted students in Sport and Leisure Commerce program.

7331. Sport and Leisure as Promotional Culture. (3). Examination of popular sport practices and representations as both the products and producers of particular social, historical, economic, technological, and political arrangements; contribution to the formation of contextually specific class, race, gender, and nation based identities and experiences.

7341. Commercial Recreation and Travel Tourism. (3). Survey of commercial leisure services with special emphasis placed on travel and tourism; sports and athletics, theaters, fitness centers, amusement and theme parks, aquatic areas, risk recreation, and historical areas, and the travel and tourism industry. PREREQUISITE: Fully admitted in the Sport and Leisure Commerce program.

7351. Gender and Sexuality in Sport and Leisure. (3). (SLC 7201). Relationship between sport, leisure, and the dominant gender practices, experiences, and identities that structure everyday life within contemporary society. PREREQUISITE: SLC 7321, 7331, or permission of instructor.

7361. Race and Ethnicity in Sport and Leisure. (3). Influence of sport and leisure on construction of differentiated racial and ethnic identities and experiences in contemporary American society. Focuses on the way sport and leisure provide contexts in which dominant

understandings of race and ethnicity are introduced, naturalized, and reproduced. PREREQUISITE: SLC 7321, 7331, or permission of instructor.

7371. Sport and Leisure in the Global Marketplace (3). Cultural production, meaning, promotion, and consumption of sport and leisure across contrasting social, political, and economic systems; relative position of sport and leisure industries at cultural interstices in the emerging global village including the phenomena of cultural conflict, cultural resistance, and cultural imperialism. PREREQUISITE: SLC 7321; and 7331 or permission of instructor.

7420. Fundamentals of Sports and Leisure Commerce. (3). (SLC 7332). Basic market concepts with applications to sport and leisure organizations, including urban sport and leisure market consumer behavior, strategic market planning, marketing mix component integration, and market information management. PREREQUISITE: MKTG 3010 and 4901 (or equivalents); or MKTG 7060; or permission of instructor.

7440. Sport and Leisure Promotions and Information Services. (3). A study of marketing communication principles and practices as they relate to sport and leisure from a theoretical, as well as practical perspective; special emphasis on building and maintaining effective media relations, advertising, sponsorship, licensing, public relations, sales, and after-marketing tactics.

7503. Organizational Dynamics in Sport and Leisure Commerce. (3). Analysis of theoretical and practical issues relevant to management and administration of sport and leisure organizations; application of organizational analysis, managing change and external environments; understanding and managing power and organizational culture of sport and leisure commerce.

7600. Current Readings in Sport and Leisure. (3). (RECR 7135 or PHED 7133). Directed readings in the area of sport and leisure; materials related to strengthen areas of study. May be repeated for a maximum of 9 credits.

7603. Administration of Athletics. (3). Representative athletic administration procedure for colleges, public school systems, and municipal athletic leagues; fiscal procedures and business management.

†7605. Practicum in Sport and Leisure Commerce. (3). (RECR 7605). Field experiences providing an opportunity for practical application of classroom theory. A range between 140 and 420 clock hours in professional field work in selected sport and leisure settings according to student's particular area of emphasis.

7653. Managing Leisure and Sport Areas and Facilities. (3). (7100). Advanced management and operation of leisure and sport areas and facilities; emphasis on comprehensive planning, design, maintenance, and inspection of areas and facilities.

7703. Sport and Leisure Programs for Special Populations. (3). (PHED 7402, SLC 7403). Examination of the special needs of people with disabilities regarding sport participation and management implications for recreation professionals.

7800. Computer Applications in Sport and Leisure Commerce. (3). (RECR 7800). Evolution, current application, and future potential of computers for sport and leisure commerce.

†7900. Problem Identification and Research Planning Seminar. (3). The methodology involved in planning, conducting, analyzing, and reporting research associated with sport and leisure. Prior to completion of the course, specific proposals must be approved by the designated committees for a research prospectus and informed consent form if human subjects are to be used in the investigation. PREREQUISITE: Completion of 18 credit hours in the program of study or permission of instructor.

7902-11. Special Topics in Sport and Leisure Commerce. (RECR 7905-15). (1-3). Current topics in sport and leisure commerce. May be repeated with change in topic. See *Schedule of Classes* for topic.

†7950. Special Project in Sport and Leisure Commerce. (3). A functional study of a topic or problem in sport and leisure that significantly relates to the student's professional goals. PREREQUISITE: Permission of instructor.

† Grades of S, U, or IP will be given.

INSTRUCTION AND CURRICULUM LEADERSHIP

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Chair

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I. A. The Department of Instruction and Curriculum Leadership offers graduate programs leading to the Master of Science, Master of Arts in Teaching, and Doctor of Education degrees. Graduate students in ICL can also take IDT (Instructional Design and Technology) courses that focus on instructional computer applications in the P-12 classroom that will lead to a Certificate in Instructional Computing Applications. The department also offers a Teacher Licensure-Only program. The College of Education is approved by the National Council for the Accreditation of Teacher Education (NCATE).

B. Definition of programs:

1. MAT (Master of Arts in Teaching Degree). The MAT program is designed for students seeking initial teacher licensure and a Master's

degree. Concentrations are offered in Early Childhood, Elementary Education, Secondary Education, and Special Education. Students choosing Special Education will choose one of three licensure areas: modified, comprehensive, or early childhood. MAT students should apply to TEP as soon as they enroll for courses. TEP admission, MAT admission, and Graduate School admission are separate procedures.

2. MS (Master of Science Degree). The MS degree is NOT designed for students seeking initial teacher licensure. It is designed for students who are seeking advanced study in education with a concentration in Instruction and Curriculum, Instructional Design and Technology, Reading, Early Childhood Education, or Special Education.
3. TEP (Teacher Education Program). The Teacher Education program is NOT a degree program. It is a Teacher Licensure-Only program regulated by the Tennessee Department of Education and administered by the Department of Instruction and Curriculum Leadership. The TEP program requires application and admission procedures that are separate and distinct from admission to the Master of Arts in Teaching program. MAT students should apply to TEP as soon as they enroll for courses. Licensure-Only programs are offered in Early Childhood, Elementary, Secondary, or Special Education. Students seeking licensure only should refer to Section II.C. below.
4. EdD (Doctor of Education). The Doctor of Education degree is designed to improve the competency of teachers, to serve the career needs and goals of individuals in education-related fields, to encourage research in a student's area of concentration, and to initiate and implement programs involving the schools and the community. Concentrations are offered in Instruction and Curriculum, Instructional Design and Technology, Reading, Early Childhood Education, or Special Education.

C. Deadlines

Applicants to the ICL graduate programs are evaluated periodically throughout the year. All application information must be received by August 1 for fall semester admission, December 1 for spring semester admission, and May 1 for summer admission.

II. MAT (Master of Arts in Teaching) Degree and Licensure (TEP) Program

The MAT degree includes coursework leading to initial licensure in the areas of Early Childhood PreK-4, Elementary, Secondary, and Special Education. A self-paced program is available in all four licensure areas.

A. Program Admission to MAT and Licensure Program

1. Applicants must submit complete admissions information:
 - a. Application to the Graduate School that includes:
 - 1) Official report of one of the following examinations: Graduate Record Examination (GRE) score, or the Miller Analogies Test (MAT) score
 - 2) Official transcripts of undergraduate and graduate study
 - 3) Applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL).
 - b. Application to the program in the Department of Instruction and Curriculum Leadership (Departmental applications can be obtained via the ICL web site or from the ICL Graduate Advising Office, Ball Hall Room 409.) that includes:
 - 1) Two letters of recommendation, preferably one from a college/university professor
 - 2) Graduate Record Examination (GRE) writing assessment
 - 3) Transcript analysis
 - c. MAT admission, TEP admission, and Graduate School admission are separate procedures.

B. Program Requirements for the Master of Arts in Teaching degree

Students seeking licensure and the MAT degree must take a minimum of 43 semester hours. The number of hours is contingent upon licensure requirements fulfilled by undergraduate studies and specific content/subject area requirements. Minimum hours may increase depending on licensure requirements. MAT students must fulfill TEP requirements below.

C. TEP (Teacher Education Program)

1. **Admission:** Students who plan to pursue a graduate program of studies leading to teacher licensure must submit a formal application to the College of Education Teacher Education Program (TEP). Students are encouraged to apply for admission into TEP as soon as they enroll in courses in the college. Requirements for admission into TEP include:
 - a. A grade point average of 2.5 at the undergraduate level or 3.0 at the graduate level and,
 - b. Successful completion of a personal interview.
 - c. Some students may be asked to make an acceptable score on the Pre-Professional Skills Test (PPST) according to the criteria established by the Tennessee State Board of Education.

Students must be admitted to the Teacher Education Program (TEP) before completing Level I courses and starting Level II courses. (Level I Professional Core courses provide requisite foundations for teaching and should be completed before taking Level II Professional Specialization courses that focus on specialized strategies for teaching and learning in educational environments). TEP admission, MAT admission, and Graduate School admission are separate procedures.

Students who do not apply to TEP or fail to maintain criteria during the program will not be allowed to continue in the program.

Licensure-Only programs are offered in Early Childhood, Elementary, Secondary, or Special Education. Licensure-Only program students may be admitted as graduate non-degree students.

2. Program Requirements

- a. Students seeking Early Childhood Licensure (PreK-4) and the MAT degree must complete the following requirements:
 - 1) Early Childhood (PreK-4) Licensure Requirements: ECED 6510, 6520, 6530, 6540, 7102; ICL 7000, 7804 (9 hours), 7993 (1 hour); RDNG 7553; EDPR 6301; LEAD 6000; SPED 6900, 7101, IDT 7048 (2 hours).
 - 2) Students are required to complete a minimum of 100 clock hours of structured field experience in PreK-4 settings prior to student teaching. These field experiences will be incorporated into courses required for licensure.
 - 3) MAT Degree requirements in addition to (a) and (b) above: ICL 7059, 7001, EDPR 7521; and either a thesis (ICL 7996-3 hours) or Master's Project (ICL 7992-3 hours).
- b. Students seeking Elementary Licensure (K-8) and the MAT degree must complete the following requirements:
 - 1) Elementary Licensure (K-8) Requirements: ICL 7000, 7100, 7709, 7654, 7605, 7504, 7806 (9 hours), 7993 (1 hour); RDNG 7553, 7554, SPED 7000; EDPR 7115, LEAD 6000, IDT 7048 (2 hours).
 - 2) Students are required to complete a minimum of 90 clock hours of field experience in elementary school settings prior to student teaching. These field experiences will be incorporated into courses required for licensure.
 - 3) MAT Degree requirements in addition to (a) and (b) above: ICL 7059, 7001, EDPR 7521; and either a thesis (ICL 7996-3 hours) or Master's Project (ICL 7992-3 hours).
- c. Students seeking Secondary Licensure and the MAT degree must complete the following requirements:
 - 1) Secondary Licensure Requirements: ICL 7000, 7100, 7709, IDT 7048 (2 hours), RDNG 7545, SPED 7000, LEAD 6000, EDPR 7112 or EDPR 7117 for any K-12 endorsement area, 3 hours of appropriate methods courses ICL 7303; 7502; 7602; 7652; 7807; BUED 7655; CSED 6383; PETE 4200, 4300 and ICL 7807 or 7808 (9 hours), 7993 (1 hour). (RDNG 7549 is a requirement for those seeking licensure in English. It is offered during the summer semester only.)
 - 2) Students are required to complete a minimum of 50 clock hours of field experience in secondary school settings prior to student teaching. These field experiences will be incorporated into courses required for licensure.
 - 3) MAT Degree Requirements in addition to (a) and (b) above: ICL 7059, 7001, EDPR 7521; and either a thesis (ICL 7996-3 hours) or Master's Project (ICL 7992-3 hours).
 - 4) Students who wish to become licensed as a teacher of French, Spanish, German, and/or Russian must pass the ACTFI Oral Proficiency Examination in addition to the requirements for licensure that other students must meet.
- d. Students seeking Special Education Licensure and the MAT degree must complete the following requirements:
 - 1) Special Education core: EDPR 7115 or 6301, SPED 6900, 7000, 7221, 7241 (9 hours), 7001 or ECED 7102 and ICL 7993.
 - 2) Licensure areas (choose one or more):
 - a) Modified (K-12): SPED 7211, 7041, RDNG 7549, ICL 7000.
 - b) Comprehensive (K-12): SPED 7601, 7611, 7621, 7042.
 - c) Early Childhood PreK-1: SPED 7101, 7121, 7621, 7141, ECED 6540.
 - 3) MAT Degree Requirements: In addition to (a) and (b) above: ICL 7059, EDPR 7523 or EDPR 7521, LEAD 6000 and either a thesis (ICL 7996-3 hours) or Master's Project (ICL 7992-3 hours).
- e. All students seeking teacher licensure must successfully pass student teaching. Students must enroll in the appropriate student teaching course during student teaching. Applications for student teaching must be filed one semester before student teaching.
- f. Licensure in Tennessee requires acceptable scores on NTE/Praxis II Examinations.
- g. Validation of methods courses is not permitted.

III. MS Degree Program

A. Program Admission

1. Applicants must submit complete admissions information:
 - a) Application to the Graduate School, including:
 1. Official report of one of the following examinations: Graduate Record Examination (GRE) score, or Miller Analogies Test (MAT) score
 2. Official transcripts of undergraduate and graduate study
 3. Applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL)
 - b) Application to the program in the Department of Instruction and Curriculum Leadership (Departmental applications can be obtained via the ICL web site or from the ICL Graduate Advising Office, Ball Hall Room 409), including:
 1. Two letters of recommendation, preferably one from a college/university professor
 2. Graduate Record Examination (GRE) Writing Assessment

Multiple criteria will be used when considering applicant admission, including, but not limited to, undergraduate and graduate grade point averages, scores of the submitted tests, and letters of recommendation.

B. Program Requirements for the MS degree

1. A minimum of 36 semester hours is required.
2. The major will consist of 18-21 semester hours in addition to ICL 7059 Models of Instruction, ICL 7001 Fundamentals of Curriculum, or ICL 7002 Curriculum Leadership, and ICL 7992 Master's Project or ICL 7996 Thesis.
3. EDPR 7521 or 7523 and three (3) semester hours in cultural, historical, or psychological foundations in education are required.
4. Three (3)—six (6) semester hours of electives are required. Courses taken depend on the undergraduate background, previous experiences of the student, and the nature of the major area of concentration. These courses must be approved by the assigned advisor and support the major area of study.

IV. EdD Degree Program

A. Program Admission

1. Applicants must submit the following admissions information:
 - a. Application to the Graduate School that includes:
 - 1) Official Graduate Record Examination (GRE) score
 - 2) Official transcripts of undergraduate and graduate study
 - 3) Applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL).
 - b. Application to the program in the Department of Instruction and Curriculum Leadership (Departmental applications can be obtained via the ICL web site or the ICL Graduate Advising Office, Room 409, College of Education) that includes:
 - 1) Two letters of recommendation, preferably one from a college/university professor
 - 2) Graduate Record Examination (GRE) Writing Assessment
 - 3) Interviews with two faculty members, one from the student's area of interest. The doctoral application file must be completed before an interview will be scheduled. Interviews must be completed prior to the College deadlines.
2. Each student's file will be evaluated prior to full admission to the Department of Instruction and Curriculum Leadership. Only those files that are completed by the admission deadline will be considered.
3. The above criteria represent the minimum acceptable admission requirements. Depending on the applicant's educational background, the graduate committee may require additional coursework to prepare the student for doctoral studies.

B. Program Requirements for the EdD Degree

1. Students who have not completed at least six semester hours of graduate level course work in cultural, historical, or psychological foundations of education must complete those hours during the first year of enrollment in the doctoral program. These prerequisites will not be counted toward the degree.
 2. A minimum total of 54 post-master's hours.
 3. The major will consist of 42-45 hours, with 9-12 hours of dissertation credit (ICL 9000) and 3-6 hours of doctoral seminar (ICL 8995).
 4. The research requirement will consist of 9-12 hours. EDPR 8541 and 8542 are required. The remaining hours should consist of courses directed toward research and/or statistical techniques and procedures necessary for the discipline and the dissertation topic.
 5. Approved transfer credit or post-master's courses may be accepted for not more than 12 semester hours.
 6. Completion of the college residency requirements.
- Additional information pertaining to the major and concentration areas may be secured from the Chair or Graduate Coordinator of the Department of Instruction and Curriculum Leadership.

V. Certificate in Instructional Computing Applications

This certificate program is designed for educators who want to integrate the use of computers in the classroom. The certificate requires the completion of 12 hours from a designated core of courses. The focus of these courses is to develop the technology competencies needed for the development, utilization, and integration of instructional computing technology in the classroom.

A. Admission

Students interested in receiving a Certificate in Instructional Computing Applications must be admitted to a College of Education graduate program, one of which is the Department of Instruction and Curriculum Leadership graduate program. The courses may be completed as part of a degree program with the advisor's approval, or as additional course work.

B. Requirements

1. Core courses: IDT 7061, IDT 7062, IDT 7063, IDT 7064
2. Students interested in developing computer-based instruction may substitute IDT 7578 for IDT 7062. Students interested in developing computer training workshops for teachers may substitute IDT 7076 for IDT 7063. Both substitutions must be approved by the advisor.

VI. Graduate Retention Policy:

It is the student's responsibility to obtain a copy of the retention policy from the departmental office.

INSTRUCTION AND CURRICULUM LEADERSHIP (ICL)

NOTE: Course numbers at the end of the title are former numbers. If the course has been taken under this former number, it may not be repeated unless so specified.

CURRICULUM (ICL)

6761. Aerospace Education in Schools. (3). (CIED 6761). Consideration of aerospace content and flight experiences; emphasizes classroom applications. (*Offered summer semester.*)

6762. Advanced Aerospace Education in Schools. (3). Theory, principles, and practices related to the historical development of aerospace, with emphasis on both civilian and military uses of aerospace capabilities; appropriate utilization of aerospace research, concepts, and "spinoffs" for instructional purposes at all grade levels. **PREREQUISITE:** ICL 6761.

7001. Fundamentals of Curriculum. (3). (CIED 7001). Principles of organizing and developing the curriculum and curriculum directions, trends, and patterns. (*Offered each semester.*)

7002-8002. Curriculum Leadership. (3). (CIED 7002-8002). Application of curriculum and leadership theory to modern educational practices; emphasis on developing leadership styles to ensure implementation. (*Offered each semester.*)

7003-8003. Curriculum Design and Evaluation. (3). (CIED 7003-8003). Considers a variety of curriculum designs and their implications for educational practice. (*Offered spring semester.*)

7004-8004. Innovative Curricula: Development and Implementation. (3). (CIED 7004-8004). Generic issues, problems, processes, and strategies relative to changes occurring with the implementation of innovative curricula. **PREREQUISITES:** CIED 7002, 7050, ICL 7002, 7050. (*Offered fall semester.*)

7008-8008. Seminar in Curriculum Improvement. (3). (CIED 7008-8008). An introduction to curriculum decision-making; includes curriculum development as a social process, issues and trends, theories and techniques of curriculum leadership, and translations of curriculum designs into practice.

INSTRUCTIONAL DESIGN AND TECHNOLOGY (IDT)

7048. Media and Technology Utilization. (2). (CIED 7048). Introduction to application of instructional technology to education; traditional media as well as emerging technologies. (*Offered fall and spring semesters.*)

7052-8052. Instructional Technology and the Learner. (3). (CIED 7052, 8052). In-depth overview of field of instructional technology; history, philosophy, and critical issues of the field; foundations and applications of instructional technology, and associated areas of research. (*Offered spring and summer semesters.*)

7060-8060. Microcomputers and Learning. (3). (CIED 7060-8060). Microapplications in the instructional process, including use of software, designing instructional programs, classroom management, use in training programs, overcoming microcomputer anxiety, and creative uses for microcomputer in learning. **NOTE:** This course cannot be used for degree requirements in the concentration of Instructional Design and Technology. (*Offered each semester.*)

7061-8061. Computers, Technology, Learning, and the Classroom. (3). Computers and technology in the instructional process, including networking; problem solving using computer tools; use of national databases; use of peripherals including CD ROMs, laser discs and graphics; technological applications for the classroom; uses for technology in different content areas. **PREREQUISITE:** Must have had an introductory computer course or permission of instructor. (*Offered each semester.*)

7062-8062. Authoring Instructional Courseware. (3). Application of instructional design principles to creation of computer-based instruction; emphasis on use of authoring and scripting systems to create instructional software. **PREREQUISITE:** Must have had an introductory computer course or permission of instructor. (*Offered spring and summer semesters.*)

7063-8063. Seminar in Instructional Computing. (3). Analysis of issues and trends related to instructional computing and instructional technology in K-12 classroom. PREREQUISITE: Six hours of coursework in IDT. (Offered fall and spring semesters.)

7064-8064. School Change and the Internet. (3). Issues, processes, and strategies relative to changes occurring with design, implementation, and evaluation of internet technology in schools. PREREQUISITE: IDT 7060-8060, IDT 7061, or permission of instructor. (Offered fall and spring semesters.)

7070. Preparation of Instructional Materials. (3). (CIED 7070-8070). Design, preparation, and utilization of media and instructional materials; laboratory practice includes development and utilization of projected, non-projected, and computer-based materials. (Offered fall semester.)

7071-8071. Principles and Applications of Instructional Design. (3). (CIED 7071-8071). Application of instructional design principles to solve performance and instructional problems in educational and non-educational environments. (Offered fall and summer semesters.)

7072-8072. Advanced Instructional Media Production. (3). (CIED 7072-8072). Analysis and application of perceptual and learning principles to design and development of instructional media for use in educational and training applications. PREREQUISITE: CIED 7071-8071, IDT 7071-8071 or permission of instructor. (Offered spring semester.)

7073-8073. Developing Interactive Instruction. (3). (CIED 7073-8073). Application of instructional design principles to design and development of interactive instruction using various instructional technologies. PREREQUISITE: IDT 7071-8071 or permission of instructor. (Offered fall semester.)

7074-8074. Theories and Models of Instructional Design. (3). A critical examination of existing instructional design theories from the perspective of supporting research and application. PREREQUISITES: IDT 7071-8071 and a research or statistics course

7075-8075. Instructional Consulting. (3). Application of interpersonal skills when working with subject matter experts and clients of design, development, and production of instructional materials. PREREQUISITE: IDT 7071-8071

7076-8076. Seminar and Workshop Design. (3). Technical and theoretical principles for developing effective seminars and workshops. Design, preparation, and implementation skills are developed for effective adult learning. PREREQUISITES: IDT 7071-8071 and research or statistics course.

7078-8078. Seminar in Instructional Design and Technology. (3). (CIED 7078-8078). Professional and research problems in instructional strategies, design, and technology. PREREQUISITE: Permission of instructor. May be repeated once with a change in topic. (Offered spring semester of odd year.)

7230-8230. Instructional Text Design. (3). Introduction to application and techniques of generating and processing instructional text and graphics electronically. PREREQUISITES: IDT 7071-8071, 7072-8072, or permission of instruction. (Offered fall semester.)

7810-8810. Practicum in Instructional Design. (3-9). Planned, supervised experience in an instructional setting appropriate to student's specialization area of instructional design and technology; opportunity to synthesize knowledge and skills and demonstrate professional competencies in educational or training settings. PREREQUISITES: IDT 7071-8071 and 3 hours of IDT coursework.

†8091. Directed Readings in Instructional Design & Technology. (1-3). Individually directed readings culminating in synthesis of ideas. May be repeated with change in topic for 9 credits. PREREQUISITES: Permission of instructor.

†8092. Supervised Research in Instructional Design and Technology. (1-6). Collaborative research with faculty including planning, design, management analysis, and reporting of research. May be repeated. PREREQUISITES: Minimum of 12 hours and permission of instructor.

EARLY CHILDHOOD EDUCATION (ECED)

6510. Early Childhood Education Programs and Practices. (3). Applying professional knowledge to early childhood education values and principles, programs and practices, issues, problems, and trends; exploring early childhood teacher roles and responsibilities through

observations in multicultural early childhood program settings. PREREQUISITE: TEP admission or permission of instructor. (Offered fall and spring semesters.)

6520. Planning and Facilitating Social Learning and Development. (3). Focuses on planning, implementing, and evaluating programs to facilitate young children's social learning and development from birth through age 9; addresses socialization and social science skills, knowledge, and dispositions in the context of integrating instruction and learning with children's literature, art, music, mathematics, science, etc. PREREQUISITE: TEP admission or permission of instructor. (Offered spring semester.)

6530. Planning and Facilitating Math and Science Learning and Development. (3). Provides knowledge, skills, and dispositions necessary to plan for and facilitate development and learning of physical, logico-mathematical, and social knowledge of mathematics and science for children from birth through 9 years. PREREQUISITES: ECED 6510, 6520, and TEP admission or permission of instructor. (Offered fall semester.)

6540. Planning and Facilitating Infant and Toddler Development and Care. (3). Models, principles, curriculum, and practices of developmentally appropriate infant-toddler care giving; emphasis on the teacher's knowledge of child development, skills, and dispositions necessary to foster infant and toddler development in group care settings. PREREQUISITES: ECED 6510, 6520, and TEP admission or permission of instructor. (Offered fall semester.)

7100-8100. Values and Principles of Early Childhood Education. (3). (CIED 7100-8100). Current curricula, trends, and issues related to early childhood education. (Offered fall semester and summer semester of even years.)

7101-8101. Nursery, Kindergarten, and Primary Teaching. (3). (CIED 7101-8101). Innovative methods and techniques for teaching nursery, kindergarten, and primary children. (Offered spring and summer of odd years.)

7102-8102. Observations and Assessment of Infants, Toddlers, and Young Children With and Without Disabilities. (3). Developmental perspective on measurement and evaluation in early childhood years; standardized tests and informal measures, their advantages and disadvantages, and professional ethical issues regarding evaluating young children with and without disabilities. PREREQUISITE: EDPR 6301. (Offered fall semester.)

7103-8103. Literacy Development in Early Childhood. (3). (CIED 7103-8103). Analysis of role of play in young children's development and learning from birth through age 9; developmentally appropriate applications to young children's literacy learning. (Offered spring semester.)

7104-8104. Play and Early Childhood Development. (3). (CIED 7104-8104). Analysis of role of play in young children's development and learning from birth through age 9; developmentally appropriate applications of play theory and research to young child's physical, intellectual, language, social, and emotional development and learning. (Offered summer semester.)

7107-8107. Constructivism in Early Childhood Education. (3). Analysis of constructivist theory and research with emphasis on implications for early childhood curriculum, the ecology of the learning environment, and the role of the teacher. PREREQUISITES: Licensure and experience in early childhood education or a related area. (Offered spring semester.)

7108-8108. Seminar in Early Childhood Education. (3). (CIED 7108-8108). Analysis of contemporary issues and trends in the field of early childhood education. (Offered summer semester.)

†8110. Directed Readings in Early Childhood Education. (1-3). Individually directed reading; written report required. May be repeated for a maximum of 9 credits. PREREQUISITE: Permission of instructor.

†8112. Supervised Research in Early Childhood Education. (1-6). Collaborative research with faculty, including planning, design, management, analysis, and reporting of research. May be repeated. PREREQUISITES: Minimum of 12 hours in concentration and permission of instructor.

†8114. Advanced Seminar in Early Childhood Education Research. (3-6). Survey and analysis of current research on selected topics in early childhood education; implications for applications in early

childhood program settings. **PREREQUISITES:** EDPR 7521 or 7523, 8541, 8561, or consent of instructor. (*Offered fall semester of odd years.*)

ELEMENTARY EDUCATION (ICL)

7040. Integrated Teaching Strategies: Elementary. (3). Curriculum, methods, and materials for teaching mathematics, science, and social studies to elementary and middle school students. **NOTE:** For individuals in Elementary Accelerated MAT program only.

7130-8130. Elementary School Curriculum. (3). (CIED 7130-8130). Analysis of curriculum theories, materials, and practices as they affect the child's potential and growth. (*Offered spring semester of even year.*)

7138-8138. Seminar in Elementary Education. (3). (CIED 7138-8138). Analysis of contemporary issues and trends in elementary education. (*Offered spring semester of odd year.*)

SECONDARY EDUCATION (ICL)

7160-8160. Modern Methods in Secondary Education. (3). (CIED 7160-8160). Secondary school teaching and how the secondary school can perform its role most effectively.

7165-8165. The Middle School. (3). Investigation of emerging concepts of the middle school and trends in classroom procedures and curriculum.

7168-8168. Seminar in Secondary Education. (3). (CIED 7168-8168). Analysis of problems, current issues, and trends in secondary education.

7170-79. Specialized Teaching Methods. (2). (CIED 7170-79). Objectives and philosophy of subject field as applied to secondary education; consideration of issues and research in content area; examination of curricular scope and sequence; application of adaptive and unique instructional strategies and methods to specific area; examination, selection, and utilization of curricular and instructional materials.

7170. Specialized Methods in English Education. (2). (CIED 7170). (*Offered fall semester.*)

7171. Specialized Methods in Mathematics Education. (2). (CIED 7171). (*Offered fall semester.*)

7172. Specialized Methods in Social Studies Education. (2). (CIED 7172). (*Offered fall semester.*)

7173. Specialized Methods in Science Education. (2). (CIED 7173). (*Offered fall semester.*)

7174. Specialized Methods in Foreign Language. (2). (CIED 7174). (*Offered fall semester.*)

SPECIAL EDUCATION (SPED)

6801-10. Workshop in Special Education. (1-9). For the professional in fields of special education. Intensive study of current methodologies, research, issues, and trends in various areas of exceptionality and disability. See *Schedule of Classes* for topic. May be repeated when topic varies.

6900. Consultation with School/Family/Community. (3). Current professional development issues that impact on educator interaction with students, parents, and other professionals including the development of communication and consultation skills. (*Offered fall and spring semesters.*)

7000. Psycho-Educational Problems of Exceptional Children and Adults. (3). Study of the relevant research dealing with the physical, mental, emotional, and social traits of all types of individuals who are exceptional; consideration of major current problems and practices in the development of various programs. **NOTE:** Not required if equivalent course taken at the undergraduate level. (Substitutions must be approved by advisor.)

7001-8001. Tests and Measurements for Exceptional Children and Adults. (3). Overview of psychoeducational assessment practices and issues with emphasis on educational and psychological tests used in special education; focus on informed interpretation of test data and implications for instructional practice. **PREREQUISITE:** SPED 7000. (*Offered each semester.*)

7002-8002. Independent Study in Special Education. (1-6). Opportunity for self-directed, independent study in special education. **PREREQUISITE:** Permission of instructor.

7010-8010. Seminar in Special Education. (3). Continuing series of professional seminars designed to provide a forum for discussion of major problems, issues, trends, and research concerning individuals with disabilities. May be repeated for a maximum of 6 hours credit. **PREREQUISITE:** Permission of instructor. (*Offered fall and spring semesters.*)

7025. Microcomputers in Special Education. (3). Emphasis on matching software programs with the unique learning needs of students with disabilities; adaptive interfacing techniques for students who have physical and/or sensory disabilities also addressed.

†7041-8041. Advanced Practicum in Special Education. (3-6). Supervised experience(s) with individuals with mild disabilities in cooperation with university, local, state, and/or national educational personnel. **PREREQUISITE:** Permission of instructor.

†7042-8042. Advanced Internship in Special Education. (3-6). Supervised experience(s) with individuals with moderate to severe disabilities in cooperation with university, local, state, and/or national education personnel. **PREREQUISITE:** Permission of instructor.

7050. Teaching the Exceptional Learner. (2-3). Overview of special education including characteristics and education of students with various exceptionalities; emphasis on developing skills for effective teaching of exceptional student in regular classroom. (*Offered summer semester.*)

7060-69-8060-69. Special Topics in Special Education. (1-3). Current topics in special education. May be repeated with a change in topic. See *Schedule of Classes* for topics.

7101-8101. Foundations of Early Childhood Special Education. (3). Overview of early childhood special education including current issues, laws, and practices that influence programs serving children with disabilities birth through age eight; emphasis on research dealing with physical, mental, emotional, and social characteristics of young children with various exceptionalities. **PREREQUISITES:** SPED 7000 or permission of instructor. (*Offered fall semester.*)

7121-8121. Educational Programming for Pre-School Children with Disabilities. (3). Methods involved in developmental assessment and educational planning for children with disabilities in pre-school years. **PREREQUISITE:** SPED 7101-8101. (*Offered spring semester.*)

†7141-8141. Practicum in Early Childhood Special Education. (3-6). Observation and supervised experience in early childhood special education settings. **PREREQUISITES:** ECED 6540 and SPED 7121-8121.

7201-8201. Characteristics of Individuals with Mild Disabilities. (3). Examination of etiological, psychological, social, and physical conditions related to the educational performance of individuals with disabilities in developmental life periods. **PREREQUISITE:** SPED 7000 or equivalent. (*Offered fall semester.*)

7203-8203. Characteristics of Individuals with Emotional Disturbance. (3). Characteristics of persons with emotional and behavioral disorders; emphasis on social, psychological, and biological theories of causality, assessment, and education with a variety of emotional and/or behavioral problems. (*Offered fall semester of odd years.*)

7211-8211. Methods I: Academic Instruction in Special Education. (3). Academic methods, remediation, and educational planning for individuals with disabilities. **PREREQUISITE:** SPED 7000, ICL 7000 or equivalent. (*Offered fall semester.*)

7221-8221. Methods II: Behavior Management in Special Education. (3). Methods of changing behaviors of individuals with mild to severe disabilities in various educational settings. **PREREQUISITE:** SPED 7000 or equivalent. (*Offered spring and summer semesters.*)

7222-8222. Methods and Techniques of Teaching Emotionally Disturbed. (3). Procedures for educating individuals with emotional disturbance; emphasis on teaching behaviors, psycho-educational management of behavior, and affective teaching techniques. **PREREQUISITE:** Permission of instructor. (*Offered spring and summer semesters of even years.*)

†7241. Supervised Practicum in Special Education. (3-9). Enhanced student teaching in settings with individuals who have disabilities. **PREREQUISITE:** Permission of instructor.

7401-8401. Psycho-Social and Educational Aspects of Learning Disabilities. (3). Psychological, social, and educational characteristics of individuals with learning disabilities; theories and philosophies regarding the treatment, etiology, and management considerations stressed. *(Offered fall semester.)*

7411-8411. Methods of Teaching Children with Learning Disabilities. (3). Remedial approaches for children with learning disabilities; emphasis on developmental sequence and educational practices. *(Offered spring semester.)*

7501-8501. Psycho-Social and Educational Aspects of Mental Retardation. (3). Historical, philosophical, and societal perceptions of individuals with mental retardation. Emphasis on social, emotional, physical, and learning characteristics. *(Offered fall semester.)*

7511-8511. Mental Retardation. (3). Emphasis on diagnostic and pedagogical techniques used with children who have mental retardation at the pre-academic level. PREREQUISITES: SPED 7000, 7501, or their equivalents. *(Offered spring semester.)*

7513-8513. Secondary School Transition. (3). Emphasizes transition issues, life skills, and vocational education to prepare students with exceptionalities for life after secondary school; also focuses on legal issues, family concerns, and effective transition programming. Familiarity with available community resources and the importance of interagency collaboration stressed. *(Offered spring semester of odd years.)*

7601-8601. Psycho-Social and Physical Aspects of Severe Disabilities. (3). Research related to etiological, psychological, cognitive, social, and physical characteristics of children who have moderate, severe and profound disabilities. PREREQUISITE: SPED 7000. *(Offered fall semester.)*

7611-8611. Methods of Teaching Individuals with Severe Disabilities. (3). Practical methods, curricula, and materials for teaching learners who have moderate to severe disabilities. *(Offered spring semester.)*

7621-8621. Health Related Issues and Aspects in Special Education. (3). An overview of medical procedures performed as related services for children with disabilities in the classroom setting; includes medication administration, seizure monitoring, CPR, first aid, suctioning, breathing assistance, external drainage procedures, positioning, and handling. *(Offered spring semester.)*

†8524. Advanced Seminar in Special Education Research. (3-6). Survey and analysis of reading research to create background information for study of selected topics in special education; translating research into practical applications in special education program settings. PREREQUISITES: EDPR 7521 or 7523, 8541, 8561, or consent of instructor. *(Offered fall semester of odd years.)*

†8622. Directed Readings in Special Education. (1-3). Individually directed readings culminating in synthesis of ideas. May be repeated with change of topic for 9 hours. PREREQUISITE: Permission of instructor.

†8623. Supervised Research in Special Education (1-6). Collaborative research with faculty, including planning, design, management, analysis, and reporting of research. May be repeated. PREREQUISITES: Minimum of 12 hours in concentration and permission of instructor.

† Grades of S, U, or IP will be given.

ENGLISH/LANGUAGE ARTS EDUCATION (ICL)

7300-8300. Contemporary Issues in Language Arts Instruction. (3). (CIED 7300-8300). Analysis of current trends and issues in the teaching of language arts: theory and research related to teaching models and their application in the language arts. *(Offered each semester.)*

7301-8301. The Teaching of Children's Literature in the Elementary School. (3). (CIED 7301-8301). Methods of teaching children's literature in the elementary school, including story telling, dramatization, choral speech work. *(Offered spring semester.)*

7302-8302. Teaching Literature to Adolescents. (3). (CIED 7302-8302). Methods of teaching adolescent literature including fiction, non-fiction, drama, and poetry. *(Offered spring semester.)*

7303-8303. English/Language Composition: Curriculum of the Secondary School. (3). (CIED 7303-8303). Emphasis on developing and implementing a sequential curriculum in secondary school language and composition. *(Offered fall semester.)*

7304. Memphis Urban Writing Institute I. (3). (Same as ENGL 7812). Intensive study of writing research, current writing practices, and issues and trends related to K-12 writing instruction. COREQUISITE: ICL 7305-8305 or ENGL 7813. *(Offered summer session.)*

7305. Memphis Urban Writing Institute II. (3). (Same as ENGL 7813). Prepares K-12 teachers to improve their writing practices and assume a leadership role in writing instruction in their schools. COREQUISITE: ICL 7304-8304 or ENGL 7812. *(Offered summer session.)*

7308-8308. Seminar in English/Language Arts. (3). (CIED 7308-8308). Emphasis on oral and written language models and how these models can be used in the development of a student-centered language arts curriculum. K-12. *(Offered summer semester.)*

MATHEMATICS EDUCATION (ICL)

7500-8500. Advanced Mathematics in the Elementary School. (3). (CIED 7500-8500). Models of elementary and middle school mathematics instruction; history, philosophy, and research supporting those models. PREREQUISITE: Teacher licensure. *(Offered fall and summer.)*

7501-8501. Elementary Mathematics Education Curriculum. (3). (CIED 7501-8501). Issues and trends in elementary school mathematics curriculum. Appropriate current reports of professional groups will be considered. *(Offered fall semester of odd year.)*

7502-8502. Teaching Mathematics in the Secondary School. (3). (CIED 7502-8502). Consideration of principles and techniques of teaching mathematics in secondary schools including study and evaluation of materials of instruction. PREREQUISITE: Permission of instructor. *(Offered fall semester.)*

7503-8503. Secondary Mathematics Education Curriculum. (3). (CIED 7503-8503). Analysis of the secondary mathematics curriculum as it relates to sound educational practices.

7504. Methods for Teaching Mathematics in the Elementary and Middle Grades. (3). Instructional techniques, curriculum, and materials for teaching mathematics to elementary and middle school students. PREREQUISITE: Admission to TEP. *(Offered fall and spring.)*

7508-8508. Seminar in Mathematics Education. (3). (CIED 7508-8508). Study and discussion of selected mathematics education topics of concern or special interest. May be repeated with a change in topics.

READING (RDNG)

7540-8540. Innovations for Teaching Literacy in the Classroom. (3). Foundations, issues, processes, and strategies relative to changes occurring with teaching of literacy; focus on linking theory to practice. Restricted to MS and EdD students. *(Offered fall and spring semesters.)*

7541-8541. Advanced Assessment of Reading Performance. (3). (CIED 7541-8541). Principles of assessment, evaluation, and prognosis in reading; formal and informal procedures and instruments used in assessing reading and related cognitive abilities; multiple causation approach to reading difficulties. PREREQUISITES: Teaching experience and CIED 7540 or RDNG 7540, or permission of the instructor. *(Offered fall semester.)*

7542-8542. Alternative Procedures for the Treatment of Reading Problems. (3). (CIED 7542-8542). Application of differentiated instruction within a clinical setting to meet the needs of the disabled reader. PREREQUISITES: CIED 7540 and 7541 or RDNG 7540 and 7541 or permission of instructor. *(Offered spring semester.)*

7543-8543. Advanced Reading Instruction for the Special Learner. (3). (CIED 7543-8543). Etiology of reading disabilities unique to various types of handicapped children; planning and treatment selection related to gifted and talented, learning disabled, mentally retarded, physically handicapped, and other categories of special learner. *(Offered fall semester of odd year.)*

7544-8544. Reading and Study Skills in the Content Areas. (3). (CIED 7544-8544). Research based theories and steps necessary for academic disciplines: techniques for improving vocabulary, cognition, study skills, and reading rate. *(Offered fall and summer semesters.)*

7545. Teaching Reading in Subject Areas. (2-3). (CIED 7545). Methods, materials, and organizational patterns by which reading skills are developed and improved through integration with teaching strategies in subject areas. *(Offered each semester.)*

7546-8546. Computer Applications in Reading Instruction. (3). (CIED 7546-8564). Incorporating computers in the reading classroom and curriculum development of educationally relevant reading programs. PREREQUISITE: CIED 7060-8060 or ICL 7060-8060 or permission of instructor. (Offered fall semester of even year.)

7547-8547. Reading Clinic. (3-6). (CIED 7547-8547). Emphasis on practical experiences of clinical diagnosis and treatment. PREREQUISITES: CIED 7540-8540 or ICL 7540-8540 or permission of instructor. (Offered summer semester of even year.)

7549. Foundations of Language and Reading Development. (2-3). (CIED 7549). Instructional techniques, curriculum, and materials for teaching language arts and reading. PREREQUISITES: Admission to TEP and ICL 7000. (Students seeking licensure in English must enroll in the summer semester.) (Offered fall and spring for MAT, ECED, ELED, SPED. Offered summer for MAT secondary students only.)

7550. Evaluation and Remediation of Language and Reading Problems. (3). (CIED 7550). Classroom procedures for the diagnosis and correction of language and reading processes in the elementary school. Restricted to students in the MAT or licensure program. PREREQUISITE: CIED 7549 or RDNG 7549. (Offered each semester.)

7553. Foundations of Literacy Development in Grades K-4. (3). Teaching and assessing literacy development in grades K-4 with focus on major theories and current research. 12 hours of field experiences are required.

7554. Foundations of Literacy Development in Grades 5-8. (3). Furthering literacy development in grades 5-8 with emphasis on teaching and assessment grounded in current research and theory. 12 hours of field experiences are required. PREREQUISITE: RDNG 7553.

8548. Advanced Seminar in Reading Research. (3-6). (CIED 7548-8548). Survey and analysis of reading research to create background information for study of selected topics in reading; translating research into practical applications in classroom and school. May be repeated for up to 6 hours. PREREQUISITE: EDPR 7521, 7523, 7541, or consent of instructor. (Offered spring semester of odd year.)

†8551. Directed Readings in Reading Education. (1-3). Individually directed readings culminating in synthesis of ideas. May be repeated with change in topic for 9 credits. PREREQUISITE: Permission of instructor.

†8552. Supervised Research in Reading. (1-6). Collaborative research with faculty, including planning, design, management, analysis, and reporting of research. May be repeated. PREREQUISITES: Minimum of 12 hours in concentration and permission of instructor.

SCIENCE EDUCATION (ICL)

7600-8600. Advanced Science in the Elementary and Middle School. (3). Models of science instruction; history, philosophy, and research supporting these models. PREREQUISITE: Teacher licensure. (Offered each semester.)

7601-8601. Elementary School Science Curriculum. (3). (CIED 7601-8601). Examination of science curriculum materials; focus on procedures for evaluation of curriculum and materials and analysis of local curricula in science; includes techniques for conducting science workshops and in-service programs. (Offered spring semester.)

7602-8602. Teaching Science in the Secondary School. (3). (CIED 7602-8602). An examination and analysis of modern science teaching strategies in the secondary school; emphasis on information processing and classroom learning strategies. (Offered fall semester.)

7603-8603. Secondary School Science Curriculum. (3). (CIED 7603-8603). Analysis of secondary science content and materials; emphasis on current concepts of the science curriculum and the selection of appropriate materials for teaching the various sciences. (Offered spring semester.)

7605. Methods for Teaching Science in the Elementary and Middle School. (3). Instruction techniques, curriculum, and materials for teaching science to elementary and middle school students. PREREQUISITES: Admission to TEP. (Offered fall and spring.)

7608-8608. Seminar in Science Education. (3). (CIED 7608-8608). A survey of selected problems and topics in science education. (Offered spring semester of even year.)

SOCIAL STUDIES EDUCATION (ICL)

7650-8650. Advanced Social Studies in the Elementary School. (3). (CIED 7650-8650). Advanced strategies for social studies instruction and history, philosophy, and research supporting those strategies. PREREQUISITE: Teacher licensure. (Offered fall semester.)

7651-8651. Curriculum Development in Elementary/Middle School Social Studies. (3). (CIED 7651-8651). Emphasis on current curriculum developments consistent with the needs, interests, and social problems of elementary/middle school children; includes research, new programs, and issues related to social studies curriculum.

7652-8652. Teaching of Social Studies in Middle School/Secondary School. (3). (CIED 7652-8652). Consideration of principles and techniques for teaching secondary social studies. (Offered fall semester.)

7653-8653. Middle School/Secondary Social Studies Curricula. (3). (CIED 7653-8653). Analysis of programs and curricular materials for secondary social studies education.

7654. Methods for Teaching Social Studies in Elementary and Middle Schools. (3). Curriculum, methods, and materials for teaching social studies to elementary and middle school students. PREREQUISITE: Admission to TEP. (Offered each semester.)

GIFTED EDUCATION (ICL)

7801-8801. The Talented and Mentally Gifted. (3). (CIED 7801-8801). Historical and societal perceptions and definitions of the talented and mentally gifted individuals; their social, emotional and learning processes. (Offered fall semester of odd year.)

7802-8802. Special Populations of the Gifted. (3). (CIED 7802-8802). Examination of the nature and needs of gifted and talented students whose performance is affected by some condition interfering with optimal growth. PREREQUISITE: SPED 7801 or ICL 7801. (Offered fall semester of even year.)

7811-8811. Methods of Teaching the Gifted and Academically Talented. (3). (CIED 7811-8811). Teaching strategies for fostering gifted behavior at preschool, elementary, and secondary levels; procedures and criteria of evaluation, curriculum sequences and guides, alternative strategies for curriculum development, the writing and implementing of individualized educational plans. PREREQUISITE: SPED 7801-8801 or ICL 7801-8801. (Offered spring semester of even year.)

7822-8822. Advanced Methods of Teaching Gifted and Academically Talented. (3). (CIED 7822-8822). Examination of provisions of services to gifted students in other than traditional enrichment programs. PREREQUISITES: SPED 7801, 7811 or ICL 7801, 7811. (Offered spring semester of odd year.)

LIBRARY SCIENCES (ICL)

6111. Library Materials for Children. (3). (CIED 6111). Evaluation and selection of books and related library materials for leisure interests and curriculum needs of elementary school children; extensive reading, introduction to selection criteria, bibliographic aids, authors and illustrators, and types of literature and information books.

6121. Library Materials for Young People and Adults. (3). (CIED 6121). Evaluation and selection of books and related library materials for leisure interests and curriculum needs of young people and adults from junior high school up; intensive reading, introduction to selection criteria, bibliographic aids, authors and illustrators, and types of literature and information books.

7132. Cataloging and Classification. (3). (CIED 6502, CIED 7132). Introduction to principles and techniques of cataloging and classification of books and other library materials.

7133. School Library Administration. (3). (CIED 6503, CIED 7133). Organization and administration of elementary and secondary school libraries, including standards, evaluation, facilities, equipment, support, student assistants, and relationship to instructional and guidance programs of school.

7730. Foundations of Librarianship. (3). (CIED 6504, CIED 7730). Introduction to librarianship as a profession and library as institution in cultural and political setting; influences of social issues, societal

needs, professional organizations, and federal legislation on goals, ethics, organization, programs, and problems of libraries and librarians.

7731. Introduction to Bibliography. (3). (CIED 6501, CIED 7731). Theory and purpose of bibliography as form of access to information; emphasis on general reference sources; introduction to principles, practices, and methods of reference service.

GENERAL (ICL)

6601. Workshop in Curriculum and Instruction: Environmental Education. (3). (CIED 6601). Overview of environmental issues and problems; curriculum development, implementation, and evaluation.

†6701-10. Workshop in Curriculum and Instruction. (1-9). (CIED 6701-10). Various areas of the curriculum and elements of instruction are explored; active student participation is included. See departmental listing in *Schedule of Classes* for exact topics.

6950-59. Special Topics in Curriculum and Instruction. (1-3). (CIED 6950-59). Designed to allow for study of current topics in the areas of curriculum and instruction at all levels. May be repeated with a change in topic and content emphasis. See departmental listing in *Schedule of Classes* for exact topics.

7000. Analysis and Practice of Teaching I. (3). (CIED 7000). Analysis of research on instruction and teaching practices; implementation of research based on strategies of developing instruction, facilitating, and assessing student learning. (Offered each semester.)

7010. Analysis and Practice of Teaching II. (3). (CIED 7010). Intensive, interdisciplinary, and integrative study of models of teaching, curriculum assessment and evaluation, reading in content area, mainstreaming, multicultural concerns, and instructional technology; emphasis on theory, research, and skills through simulations and microteaching. PREREQUISITE: CIED 7000 or ICL 7000.

7020. Professional Development Seminar I. (1-3). (EDUC 7020). Interpersonal and group process skills needed for teaching.

7021. Professional Development Seminar II. (1-3). (EDUC 7021). Specialty teaching area in pedagogical skills application.

7022. Professional Development Seminar III. (1-3). (EDUC 7022). Teacher roles, professional relationships, and professional development.

7030. Assessment and Evaluation. (2). (EDUC 7030). Test construction and methods of evaluation; emphasis on teacher made tests, standardized tests, test administration, test data management, interpretation and application of test data to instructional decisions, and reporting test results to students and parents.

7032. Classroom Management. (2). (EDUC 7032). Managing classroom environment; emphasis on constructive management techniques. Application of knowledge of human development and teaching and learning principles to development of classroom management systems.

7051-8051. Simulation. (1-3). (CIED 7051-8051). Surveying, analyzing, and designing simulation activities appropriate for classroom situations; individual and group participatory activities.

7054-8054. Creativity in Teaching and Curriculum. (3). (CIED 7054-8054). Instructional strategies relevant to development of creative potential; activities include problem-solving, metaphoring, inventing, synectics, evaluation, questioning, brainstorming, creative writing and thinking, and spontaneity.

7058-8058. Values Education. (3). Major movements related to values education and analysis of strategies applicable to educational settings. (Offered fall semester.)

7059. Models of Instruction. (3). (CIED 7059). Analysis of theoretical and research support for selected models of instruction; emphasis on teaching applications. (Offered each semester.)

7080. Curriculum and Instruction for the Multiethnic School. (3). Survey, analysis, and design of curriculum and instruction that considers the multiethnic nature of students in the urban school and facilitates their academic and social growth.

7100. Field Experiences Introduction to Teaching. (1). Structured observation and participation in schools; emphasis on management and instructional issues. Field experiences: 10 hours.

7704-8704. Workshop: Newspaper in the Classroom. (3). (CIED 7704-8804).

7705-8705. Managing the Learning Environment. (3). (CIED 7705-8705). Teacher's role in integrated approach to managing classroom's physical and behavioral learning environments, school curriculum, and pupil development and learning. (Offered each semester.)

7706. Family and Community Relations for Teachers. (3). (CIED 7706). Analysis of family, cultural, and community patterns in relation to the teacher's roles and responsibilities for building educational partnerships. (Offered each semester.)

7707-8707. Applied Analysis of Theory and Practice in Classroom Behavior Management. (3). Solving classroom organization and management problems; theory and practice related to human growth, development, behavior, culture, and learning applied to management problems for design of solutions. PREREQUISITE: ICL 7705-8705. (Offered spring and summer semesters.)

7709. Urban Learning Environment. (3). Use of appropriate knowledge and skills for managing the total learning environment in both the early and middle school settings; emphasis on developing knowledge and skills that facilitate effective teaching through appropriate instructional and behavioral management techniques. Field experiences: 10 hours.

7800. Advanced Clinical Practicum for Initial Teacher Licensure or Additional Endorsement. (3-9). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience. COREQUISITE: ICL 7993. (Offered fall and spring semesters.)

†7803-8803. Internship in Kindergarten. (3-9). (CIED 7800-8800). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience.

†7804-8804. Student Teaching in Early Childhood Settings. (3-9). (CIED 7800-8800). Includes student teaching experiences in both PreKindergarten or Kindergarten, and Primary grades 1-3. COREQUISITE: ICL 7993.

†7805-8805. Internship in Elementary School. (3-9). (CIED 7800-8800). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience.

†7806-8806. Student Teaching in Elementary School. (3-9). (CIED 7800-8800). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience. COREQUISITE: ICL 7993.

†7807-8807. Internship in Secondary School. (3-9). (CIED 7800-8800). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience.

†7808-8808. Student Teaching in Secondary School. (3-9). (CIED 7800-8800). Includes student teaching, supervised practicum, and other similarly organized professional experiences; designed to compliment on-campus course study with actual on-site professional experience. COREQUISITE: ICL 7993.

†7809-8809. Reading Research Practicum. (3-9). (CIED 7800-8800). Participation is required in a supervised research practicum; the experience includes either a clinical or field-based component; the development of a research paper is required.

7850-8850. Supervision of Student Teaching. (3). (CIED 7850-8850). Principles and techniques of student teaching supervision; designed for supervising teachers, administrators, coordinators of student teaching programs, and college personnel.

7950-69-8950-69. Advanced Topics in Instruction and Curriculum. (1-3). (CIED 7950-59-8950-59). Current topics in areas of instruction and curriculum at advanced levels. May be repeated with change in topic and content emphasis. See *Schedule of Classes* for topics.

7991-8991. Independent Study in Instruction and Curriculum. (1-9). (CIED 7991-8991). Includes special problems, field studies, and other similarly organized professional experiences under the direct supervision of a faculty member within the department; emphasis on student planning, initiating, conducting, and completing independent studies, projects, etc., designed to meet programmatic goals and individual needs.

†7992. Master's Project. (3). (CIED 7992). Designed as a culminating experience; direct participation is required for the successful completion of a field-study, on-site project or other classroom based experience. This course must be taken at the end of all coursework. ID&T students must contact advisor before registering for Master's Project. **PREREQUISITE:** EDPR 7523 or EDPR 7521. (*Offered fall and spring semesters.*)

7993. Professional Seminar. (1). An integrative, capstone seminar for advanced post-baccalaureate teacher certification students; students will apply reflective, analytical, and critical thinking to selected issues regarding school curriculum, teaching methods, professional ethics, legal issues, leadership and advocacy, professional relations, communication and problem solving.

7994-8994. Developing Proposals. (3). Procedures and techniques for development of research, project, and grant proposals; emphasis on development of proposal for research study or in response to funding request. (3). **PREREQUISITES:** ICL 7079-8079 and 9 hours of research or permission of instructor. (*Offered spring semesters.*)

†7996. Thesis. (1-6). (CIED 7996). Prospectus must be approved by the faculty committee directing this research study. Application for writing thesis must be filed with the Director of Graduate Studies.

†8000. Specialist Culminating Experience. (1-6). (CIED 8000). Thesis, internship, field study, or special project designed under direction of student's committee. Serves as capstone experience in Education Specialist Program.

†8995. Research Residency Seminar. (3-6). (CIED 8995). Survey and analysis of research in the varied disciplines of curriculum and instruction. To be taken during the doctoral residency. May be repeated for a maximum of 6 credit hours. (*Offered each semester.*)

†8996. Teaching in Instruction and Curriculum Leadership for Graduate Assistants. (1-3). Overview and practical demonstrations of the art of teaching for graduate assistants. May be repeated for a maximum of 3 credit hours.

†8997. Research Skills in Instruction and Curriculum Leadership for Graduate Assistants. (1-3). Research design, practice, and methodology in Instruction and Curriculum Leadership for graduate assistants. May be repeated for a maximum of 3 credit hours.

†8998. Directed Readings in Instruction and Curriculum Leadership. (1-3). Individually directed readings culminating in synthesis of ideas. May be repeated with change in topic for 9 hours. **PREREQUISITE:** Permission of instructor.

†8999. Supervised Research in Instruction and Curriculum Leadership. (1-6). Collaborative research with faculty including planning, design, management, analysis, and reporting of research. May be repeated for maximum of 12 hours. **PREREQUISITES:** Minimum of 12 hours in concentration and permission of instructor.

†9000. Doctoral Dissertation. (1-12). (CIED 9000). Credit may be earned over a period of several semesters. The dissertation may be an organized scientific contribution or a comprehensive analysis of theory and practice in a specific area.

EDUCATIONAL SERVICES (EDSV)

6350. Instructional Development for Training. (3). Instructional development techniques and application in training settings, principles of curriculum development, instructional delivery, and evaluation.

† Grades of S, U, or IP will be given.

LEADERSHIP

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I. Program Admission for Master of Science (MS) and Doctor of Education (EdD) in Leadership and Policy Studies

- Each applicant must submit a completed application packet to the University Graduate School that includes:
 - A completed admissions application
 - An official report of the Miller Analogies Test (MAT) for the MS or Graduate Record Examination (GRE) scores for the EdD.
 - Official transcripts for all prior undergraduate and graduate courses.
- In addition, each applicant must submit the following to the Department of Leadership:
 - A professional resume
 - Three letters of professional recommendation,
 - A brief statement of professional goals, and if available,
 - A professional portfolio and other supporting materials.
- A personal interview preceded by a writing sample will be scheduled with each applicant and an admission decision will be made following the personal interview. The decision will be based on a holistic profile that includes, but is not limited to, information contained in the completed application packet described above and obtained during the personal interview. Interested applicants are encouraged to contact the departmental office to obtain admission forms and a more complete statement of admission guidelines and requirements for Tennessee administrative certification. All students seeking certification must take the appropriate state-required examination at the conclusion of their program.

A. Master of Science (MS) Degree Program

- The Department offers the Master of Science degree in Leadership and Policy Studies with concentrations in (1) School Administration and Supervision—a certification program—and (2) Leadership.
- Program Requirements
 - A minimum of 36 semester hours is required of all students to obtain the master's degree.
 - Nine hours must be taken in the departmental core for this degree: LEAD 7000, LEAD 7100, and EDPR 7521 or 7523 and 27 other hours.
 - The following policies in the Department of Leadership are exceptions to the policies of the Graduate School:
 - A maximum of nine (9) hours of workshop/independent study courses can be counted toward the concentration in School Administration and Supervision.
 - A maximum of six (6) hours of transfer credit can be counted toward the concentration in School Administration and Supervision.
 - A maximum of six (6) hours of course work can be validated in the concentration in School Administration and Supervision.
- Concentrations and Courses:
 - School Administration and Supervision:** A minimum of 27 hours specified by the Individual Program of Studies (IPS) developed in

LDPS 7110, including LEAD 7210 and LEAD 7070. Currently a 120-contact-hour field experience is required. This number of hours may be increased to approximately 520 hours beginning in 2001.

- Leadership:** A minimum of 27 semester hours, including LEAD 7500; 3 or 4 additional departmental courses must be taken.

- Administration/Supervision Certification Program:** The department maintains a program leading to certification (licensure) for students holding an appropriate master's degree. Entrance requirements are similar to the MS concentration in School Administration and Supervision. Students should contact the department for additional information and for the development of a tentative program of studies.

B. Doctor of Education (EdD) Degree Program

- The department offers concentrations in Community Education, Educational Leadership, and Policy Studies.
- Program Requirements
 - A minimum of 54 semester hours beyond the master's degree is required of all students.
 - Fifteen hours must be taken in the departmental core: LEAD 8001, 8002, 8003, EDPR 8541 and 8542; 9 hours of dissertation; and 30 additional hours.
 - Doctoral programs are not intended for basic administrative certification. Students wishing certification through this program must complete additional course work approximating the requirements in the Certification program noted above.
 - The following policy in the Department of Leadership is an exception to the policies of the Graduate School:
 - Graduate students must complete the doctoral program within ten (10) calendar years.
- Concentrations and Courses:
 - Community Education:** LEAD 8500, LDPS 8170, 8171, and 8181, and 18 hours approved by the student's advisory committee.
 - Educational Leadership:** LDPS 8121, 8132, and 8181, and 21 hours approved by the student's advisory committee.
 - Policy Studies:** LDPS 8305, 8310, and 8350, and 21 hours approved by the student's advisory committee.

II. EdD in Higher Education and Adult Education

A. Program Admission

- Each applicant must submit a completed application packet to the Graduate School that includes:
 - A completed admissions application
 - An official report of Graduate Record Examination (GRE) scores
 - Official transcripts for all prior undergraduate and graduate courses
- In addition, each applicant must submit the following to the Department of Leadership:
 - A professional resume
 - A two-three page statement of academic and professional goals
 - Three letters of recommendation
- A personal interview will be scheduled with each applicant, and an admission decision will be made following the personal interview. The decision will be based on a holistic profile that includes, but is not limited to, information contained in the completed application packet described above and obtained during the personal interview. Interested applicants are encouraged to contact the departmental office to obtain admission forms and a more completed statement of admission guidelines for the higher and adult education program.

B. Program Requirements

- A minimum of 54 semester hours beyond the master's degree including the core requirements of LEAD 8001, 8002, 8003, 8500, HIAD 8403, EDPR 8541 and 8542; 9 hours of dissertation; and 24 hours of electives.
- Concentrations:
 - Higher Education: HIAD 7410, 8401, 8410, 8420 or 8422, 8451, and 9 elective hours approved by the student's advisory committee.
 - Adult Education: HIAD 8510 and 21 hours approved by the student's advisory committee.

LEADERSHIP (LEAD)

6000. Foundational Studies: Education, Schooling, and American Society. (3). (EDFD 7003-8003). Interdisciplinary study of educational policies and practices in American society; role and function of the school and the teacher; analysis of major problems and issues facing contemporary public education. Five hours of school visitation required. (Fulfills foundations requirement for graduate students seeking teacher licensure.)

6400. Leadership and Reform in American Schools. (3). Concepts of leadership in the reform context of contemporary American social and educational policy; examination of major legal, political, economic, organizational, and philosophical issues; role of the teacher-leader.

7000. Introduction to Educational Leadership. (3). (EDAS 7100). Theory and practice of educational leadership; scope, task, areas,

processes and procedures, organization structure, problems and issues, and types of personnel needed in the United States.

7004. Cultural Foundations of Education for Pupil Services. (3). (EDFD 7004). Analysis of philosophical, sociocultural, and historical dimensions of educational policies and practices relating to pupil personnel services in schools; distillation of important topics in educational foundations for specialized educational employees such as school attendance officers, school counselors, school psychologists, speech-language clinicians, and school social workers.

7050-59-8050-59. Special Topics in Leadership. (1-3). (EDAS 7712-22-8712-22). In-depth study of selected topics in educational leadership. May be repeated with change in topic.

†7061-8061. Practicum in Leadership. (1-3). (EDAS 7170-8170). Practical short-term work experiences in various settings appropriate to student's career needs. May be repeated for maximum of 9 credits.

†7070-8070. Culminating Experience. (1-6). (EDAS 7996). Capstone course using a problem-based, case-study approach. PREREQUISITE: Must be taken in last semester or by permission of department chair.

The following courses consist of readings and reports to survey the literature on the topic. May be repeated with departmental permission.

7081-8081. Readings and Research in Higher and Adult Education. (1-3). (EDAS 7790-8790).

7082-8082. Readings and Research in Educational Leadership. (1-3). (EDAS 7710-8710).

7083-8083. Readings and Research in Educational Policy. (1-3). (EDFD 7008-8008).

7084-8084. Readings and Research in School and Community Relations. (1-3). (EDAS 7700-8700).

7085-8085. Readings and Research in Educational Supervision. (1-3). (EDAS 7750-8750).

7086-8086. Readings and Research in Educational Finance and Business Management. (1-3). (EDAS 7730-8730).

7087-8087. Readings and Research in Educational Personnel and Negotiations. (1-3). (EDAS 7760-8760).

7088-8088. Readings and Research in Educational Law. (1-3). (EDAS 7780-8780).

7089-8089. Readings and Research in Educational Plant and Transportation. (1-3). (EDAS 7740-8740).

7100. Education and Community. (3). (EDAS 7000). Educational processes and policies in formal and non-formal community settings; inter-relationships among such settings; field-based, students will assess particular educational policy and its implications within the community.

†7210-8210. Field Experiences. (1-9). (EDAS 7171-8171). Internship work experiences under supervision of practicing K-12 professional. May be repeated for maximum of 12 credits. Prospective enrollees must meet departmental deadlines for application.

7500-8500. Adult Learning and Leadership. (3). (HIAD 7255-8255). Characteristics of adult learners; factors that affect learning, achievement, and motivation throughout the adult life-cycle; implications for educational leaders and human resource development.

†7996. Thesis (1-6). Prospectus must be approved by the faculty committee directing this research study. Application for writing thesis must be filed with the Director of Graduate Studies.

†8000. Specialist Culminating Experience. (1-6). Thesis, internship, field of study, or special project designed under direction of student's committee; capstone experience in Education Specialist program.

8001. Educational Leadership in Organizations. (3). (EDAS 8800). Basic theories of organization and administration; historical and contemporary foundations of theories; implications of current theories and practices for organizational and human resource development.

8002. American Society and Educational Policies. (3). (EDFD 7001-8001). Historical evolution of major social issues and resulting educational policies; normative and empirical bases of educational principles and practices; sociocultural contexts of contemporary problems and issues.

8003. Policy-Oriented Research. (3). Inquiry methods appropriate to educational policy research; empirico-inductive (grounded) and

constructivist inquiry strategies emphasized. PREREQUISITES: LEAD 8001 & 8002, EDPR 8541 or equivalent, or permission of the instructor.

8140. Planning of Educational Change. (3). Characteristics of change in a variety of educational settings. Emphasis on planning theory, implementing and managing change processes; specific variables that impact on change efforts; analysis of planning and analysis tools; computer simulations and case studies.

†9000. Doctoral Dissertation. (1-9). (EDAS 9000).

HIGHER AND ADULT EDUCATION (HIAD)

†7060-8060. Internship in Higher and Adult Education. (1-6). Work experiences in higher education institution or in adult education settings under supervision of practicing professional and university supervisor. May be repeated for maximum of 6 credits. PREREQUISITE: Permission of instructor.

7403-8403. Research in Higher and Adult Education. (3). Current topics, research problems, new studies, and needed inquiries in higher and adult education. PREREQUISITE: EDPR 7541 or equivalent.

7410. Overview of Higher Education. (3). (EDAS 7190-8190). Higher education in social and historical contexts; organization and administration of colleges and universities.

7411-8411. Community Colleges. (3). (EDAS 7191-8191). History, philosophy, and changing mission of the community college; focus on administration, faculty, staff, and students; curriculum and services; funding, public relations, and the presidency.

7430-8430. The Professoriate. (3). Faculties of U.S. colleges and universities, nature of their work in various types of institutions, academic reward system, and programs for continuing professional development.

7440-8440. Student Personnel Services in Higher Education. (3). (COUN 7613-8613). Activities, functions, relationships, and philosophy of student personnel services; historical developments and current trends in student personnel services in relation to changing concepts in higher education.

7441-8441. College Students and College Cultures. (3). (COUN 7672-8672). College student characteristics and differing life patterns in institutional perspective; variations in student and college cultures in types of institutions.

7450-8450. College and University Curriculum. (3). (HIAD 7200-8200). Structure, development, implementation, and assessment of curriculum in colleges and universities; historical and philosophical perspectives; major figures, emerging trends, and contemporary issues.

7452. Developmental Education (3). (HIAD 7204-8204). Developmental education programs in colleges and universities; focus on policy, administration, and instruction.

7510-8510. Overview of Adult Education. (3). (HIAD 7250). Historical development of adult education; scope of field, including non-formal, post-secondary education, and human resource development.

7512-8512. Developing and Funding Leadership Programs. (3). (HIAD 7256-8256). Adult leadership programs in various organizations, agencies, and groups as primary, supplementary, or complementary function; community relations and development in funding.

7530-8530. Continuing Professional Education. (3). Background and development of continuing education for professionals, including medicine, law, social work, psychology, dentistry, and education as well as other fields; examination of impetus and providers for such programs.

7541-8541. College Teaching. (3). (HIAD 7201-8201). Issues and trends in teaching and learning in higher education; analysis of various classroom teaching approaches designed for diverse student populations in higher education.

8401. Higher Education Administration. (3). (EDAS 7192-8192). Role, function, organization, and administration of colleges and universities; roles of presidents and other administrators; variations in academic and student life in higher education; relationships with various constituencies; problems of practice and power.

8405. Seminar in Higher and Adult Education. (3). (HIAD 7258-8258). Culminating experience for doctoral students; examination of current issues using cross-disciplinary perspectives derived from previous coursework.

8412. Historical and Policy Perspectives in Higher Education. (3). (EDFD 7002-8002). Historical development of higher education in the United States; current higher education policy issues in relation to this development.

8420. Higher Education Law. (3). (EDAS 8380). Legal principles and significant legal constraints relating to institutions of higher education; emphasis on application of law to organizational structure, students, personnel, programs, property, and finance; analysis of current legal issues.

8422. Higher Education Finance. (3). (EDAS 8320). Financing of institutions in higher education; sources and methods of securing funds; development of programs; procedures for budget development and analysis; other financial and economic aspects of higher education administration; analysis of current problems related to higher education finance.

8991. Teaching in Higher Education for Graduate Assistants. (1-3). Overview and practical demonstration of the art of teaching in higher education and lifelong learning. Restricted to graduate assistants. May be repeated up to 12 hours credit.

LEADERSHIP AND POLICY STUDIES (LDPS)

†7110. Leadership Exploration Seminar. (3). (EDAS 7400). Leadership and personal prospects for a career in educational administration; development of Individual Program of Studies (IPS).

7112-8112. Management of Educational Grants and Projects. (3). Planning and management of field-based educational projects, grants, and consulting services. Emphasis on team and group efforts; computer applications in project management.

7120. The Supervisory Process. (1-6). (EDAS 7050). Theory and methodology of educational supervision, with emphasis on instructional leadership; differences in roles for various supervisory personnel; project based.

7121-8121. Personnel Administration. (3). (EDAS 7160-8160). Educational personnel administration and policy including: human resource management, staffing goals, policies, recruitment, induction, roles, and professional development.

7122-8122. Collective Bargaining in Education. (1-3). (EDAS 8360). Analysis of bargaining in education, including history, issues, resource data, proposals, table tactics, contract language, impasse procedures, roles, and career opportunities in educational negotiations. PREREQUISITE: LDPS 7121 or permission of instructor.

7130. Microcomputer Applications in Educational Administration. (1-3). (EDAS 7440-8440). Role of computer in educational administration and supervision; uses in budgeting, attendance, scheduling, student records, and inventory. PREREQUISITE: Permission of instructor.

7131. School Business Management. (1-3). (EDAS 7130-8130). Business affairs of schools in accordance with laws and policies of local, state, and federal agencies; overview of legal and ethical standards; site budgeting and project management.

7132-8132. School Finance. (3). Funding of public schools in the United States and other developed nations; analysis of various school funding models and related equity issues.

7134-8134. Advanced Computer Applications in Educational Administration. (3). In-depth experiences with computer software specifically designed for management in education; includes applications in areas of student and faculty record management, project management, student scheduling, transportation, food services, and facility utilization.

7140-8140. Participatory Governance and Change. (3). Theory, research, policy, and practice in educational restructuring and participatory governance; strategies and procedures for implementation including role clarification, participatory decision making, group problem solving, communication, team building, evaluation, development of parent-community partnerships; mission setting and ethical and moral principles of governance.

7141. The Principalship. (1-6). (EDAS 7111-8111 & 7311-8311). Role of the principal in school site leadership focusing on instructional

leadership and organization and administration of the school's resources; projects for elementary, middle, junior, and secondary principalship.

7150. Educational Law. (3). (EDAS 7180-8180). Federal and state statutes and local regulations applicable to education; legal requirements and their implications for educational operation; legal research methods and case law.

7170-8170. Community Education Administration. (3). (EDAS 7611-8611). Organizational aspects of community education programs, including administration and supervision of personnel and citizen-community participation in formulating, implementing, and evaluating community education programs.

7171-8171. Continuing and Adult Education Administration. (3). (EDAS 7612-8612). Organization and administration of adult and continuing education, including adult remedial, vocational-technical, community outreach programs; administrative methods and materials appropriate to adult habits and needs; interpreting current legislation and research relating to adult and continuing education programs; planning, implementing, and evaluating strategies.

7172. Curriculum Planning in Adult Basic Education. (3). (HIAD 7252-8252). Principles of curriculum building in application to adult basic education students.

7180-8180. Politics and Power in Educational Leadership. (3). (EDAS 7810-8810). Field study of techniques and strategies for leaders in education to discover sources of community power influencing education policy; emphasis on superintendent, school board, and central office leaders.

7181-8181. Policy Implementation in Educational Administration. (3). (EDAS 7811-8811). Development and implementation of administrative policy at the local, state, and national levels in relation to forces that shape thinking of policy-making bodies.

7305-8305. Issues in Educational Policy. (3). Special issues of current interest related to American educational policies and practices.

7311-8311. Issues in Philosophy of Education. (3). (EDFD 7021-8021). Critical examination of issues in the philosophy of education; history of issues and their effect on modern public schools.

7320-8320. Urban Education: Historical and Contemporary Perspectives. (3). Sociological and cultural dimensions of urban society and education with emphasis on contemporary issues and recent policy developments.

7330-8330. Race, Ethnicity, Gender, and American Education. (3). Historical and contemporary study of educational practices and policies related to various ethnic and racial groups, as well as women in the United States; various models of institutional and community forms of multicultural education.

7340-8340. Comparative Education. (3). Cross-cultural and cross-national study of educational policies and practices.

7350-8350. Policies and Politics of Contemporary American Education. (3). (EDFD 7033-8033). Conceptual and empirical analyses of political and social issues related to US education.

8111. Educational Administration Performance Laboratory. (1-6). (EDAS 7370-8370). Laboratory experiences including gaming and simulation to illustrate complex organizations, information systems, network planning and projection systems, and leadership assessment.

8115. Educational Leadership Seminar. (3). (EDAS 7510-8510). Problems and issues derived from trends in contemporary culture that impact on educational leadership; emphasis on instructional leadership.

8133. Economics of Education. (3). (EDAS 8220). Economic aspects of education in the United States and other developed nations.

8155. Seminar in Education Law. (3). Analysis of current legislation and case law and its impact on education. PREREQUISITE: LDPS 7150 or permission of instructor.

8310. Philosophical Analysis and Educational Policy. (3). (EDFD 7022-8022). Exploration and use of philosophical analytical skills for assessing educational policies and practices.

† Grades of S, U, or IP will be given.

The Herff College of Engineering

RICHARD C. WARDER, PhD
Dean

WILLIAM S. JANNA, PhD
Associate Dean and Director of Graduate Studies

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GRADUATE ACADEMIC PROGRAMS

Department	Major	Concentration	Degree Offered
Biomedical Engineering	Biomedical Engineering		Master of Science (MS) and Doctor of Philosophy (PhD)
Note: The above degrees are offered through a joint academic program with The University of Tennessee, Memphis, School of Biomedical Engineering			
Civil Engineering	Civil Engineering	(1) Environmental Engineering (2) Foundation Engineering (3) Structural Engineering (4) Transportation Engineering (5) Water Resources Engineering	Master of Science (MS)
Electrical and Computer Engineering	Electrical Engineering	(1) Automatic Control Systems (2) Communications and Propagation Systems (3) Electro-Optical Systems (4) Engineering Computer Systems	Master of Science (MS)
Engineering Technology	Engineering Technology	(1) Architectural (2) Electronics (3) Manufacturing	Master of Science (MS)
Mechanical Engineering	Mechanical Engineering	(1) Design and Mechanical (2) Energy Systems (3) Mechanical Systems (4) Power Systems	Master of Science (MS)
Interdepartmental	Industrial and Systems Engineering		Master of Science (MS)
	Engineering	(1) Civil Engineering (2) Electrical Engineering (3) Mechanical Engineering	Doctor of Philosophy (PhD)

Individual program requirements described in *The University of Memphis Graduate Bulletin, 2001-2003*, are subject to change. Please consult your department or the Office of the Graduate School for changes that may occur before publication of the next issue of this Bulletin; or consult the Graduate School website at: <http://www.memphis.edu/gradschool> for annual catalog updates.

The Herff College of Engineering offers graduate programs at the master's and doctoral levels through its departments of Biomedical, Civil, Electrical and Computer, and Mechanical Engineering. In addition, a master's program in engineering technology is offered through the Department of Engineering Technology and an interdisciplinary master's program is offered in industrial and systems engineering. Students enrolled in the college at the master's level work toward the Master of Science (MS) degree. The doctoral program of the college leads to the degree of Doctor of Philosophy (PhD) after successful completion of study and research in one of the following four areas: biomedical, civil, electrical, or mechanical engineering. Candidates for all degrees must follow a curriculum plan that has been approved at the departmental level and by the Director of Graduate Studies of the College.

MASTER OF SCIENCE DEGREE PROGRAMS

The purpose of the master's degree programs is to provide opportunity for advanced study in various areas of engineering of current importance. Flexibility is provided in that students have the option of a thesis or non-thesis program.

Admission Requirements

Applicants will be considered for admission to the master's program based upon a common set of criteria. These are the

applicant's attainment of an appropriate bachelor's degree, the score earned on the Graduate Record Examination (GRE), and the undergraduate grade point average (GPA). The GPA used is either the cumulative or the last 60 semester hours of applicable courses earned toward a degree.

In addition to meeting the University minimum admission requirements, applicants must meet the following criteria established by this College.

The applicant must have:

1. appropriate bachelor's degree as determined by the admitting department.
2. an undergraduate GPA of at least 2.5.
3. an acceptable score on the verbal and quantitative portions of the GRE as established by their department or program of study.

In addition to meeting the college minimum admission requirements, applicants must meet admission criteria established by their department of study. An applicant who lacks an appropriate bachelor's degree may be required to complete undergraduate deficiency courses. If the number of deficiency courses is large, the applicant may be required to complete an undergraduate degree in engineering before seeking admission to the graduate program.

In addition to the above requirements, applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL). Applicants are further advised that the admission requirements for the College are minimum requirements. Meeting minimum requirements does not guarantee admission into a specific departmental Master's program.

Retention Requirements

Refer to the individual program descriptions of each department.

Graduation Requirements

Refer to the individual program descriptions of each department.

DOCTOR OF PHILOSOPHY DEGREE PROGRAM

The Herff College of Engineering offers a program leading to the degree of Doctor of Philosophy (PhD) with a major in Engineering and concentrations in biomedical, civil, electrical, or mechanical engineering. In addition the College offers a course of study leading to a degree of Doctor of Philosophy (PhD) with a major in Biomedical Engineering through a joint academic program with The University of Tennessee, Memphis School of Biomedical Engineering.

Admission Requirements

Applicants will be considered for admission to the doctoral program based upon a common set of criteria. These are the applicant's educational background, Graduate Record Examination (GRE) score, grade point average (GPA), and letters of recommendation. The GPA used is either the cumulative or the last 60 semester hours of applicable courses earned toward a degree. Admission criteria also depend upon whether the applicant received a degree from an institution that is accredited at the undergraduate level by the Accrediting Board for Engineering and Technology (ABET).

In most cases, applicants will be considered for admission after completion of a master's degree. However, in certain cases, applicants will be considered for admission to the doctoral program after the attainment of a bachelor's degree. The following criteria will be applied according to the applicant's educational background as categorized below:

A. Master's Degree

1. Master's Degree from a School with an ABET Accredited Undergraduate Program: Applicants who have a master's degree from an engineering program accredited at the undergraduate level by ABET will be considered for admission provided they have an acceptable score on the verbal and quantitative portions of the GRE as established by their department or program of study.
2. Master's Degree from a School with a non-ABET Accredited Undergraduate Program or Bachelor's Degree field other than Engineering: Applicants in this category will be considered for admission provided the GRE Verbal score is at least 450 and the GRE Quantitative score is at least 600. In addition, the product of the graduate GPA and the GRE score must equal at least 3500, i.e., $[GPA \times GRE > 3500]$.

B. Bachelor's Degree

1. Bachelor's Degree from an ABET Accredited Program: An applicant who has a bachelor's degree from an engineering program accredited at the undergraduate level by ABET will be considered for admission provided he or she has an acceptable score on the verbal and quantitative portions of the GRE as established by their department or program of study.
2. Bachelor's Degree from a non-ABET Accredited program or Master's Degree field other than Engineering: Applicants in this category will be considered for admission provided they have an undergraduate GPA of at least 3.75, a GRE verbal score of at least 500, and a GRE quantitative score of at least 650.

Grade point averages above are based on a 4.00 grading system where A = 4.00. Students presenting transcripts using a different system will be held to similar standards.

In addition to the above requirements, all applicants must submit an application for admission to The University of Memphis along with three letters of recommendation from previous instructors attesting to the applicant's academic ability and potential for success in a doctoral program. Applicants whose native language is other than English must score at least 550 (or 210 on the computer-based) on the Test of English as a Foreign Language (TOEFL).

The above represent the minimum acceptable admission requirements. In addition to meeting the College minimum admission requirements, applicants must meet admission criteria established by their department or program of study.

Depending on the applicant's educational background, the advisory committee may require additional coursework to prepare the student for doctoral studies.

In unusual circumstances where the above admission requirements cannot be met, an applicant may seek exceptions by contacting the Director of Graduate Studies for the college.

Applicants are further advised that the College reserves the right to deny some applications for admissions because of limited faculty availability and physical facilities to accommodate student research interests.

Retention Requirements

A student will be retained continuously in the program until completion of the degree providing the following conditions are met:

All students will be required to maintain a grade point average (GPA) of at least 3.00. Should the student's GPA fall below that mark, a period of one semester or one full summer term will be allowed to correct the deficiency. Failure to regain the minimum 3.00 is considered sufficient reason for being dropped from the program. This period may, at the discretion of the student's advisory committee, be extended one additional semester or full summer term. If the GPA at the end of this extension is still below 3.00, the student will be dismissed from the program.

Accumulation of more than 7 semester hours of cumulative graduate coursework with a grade of 2.0 or lower will result in dismissal from the program, i.e., a student who accumulates 6 hours of graduate coursework with a grade of 2.0 or lower in a master's program is permitted only one additional hour with a grade of 2.0 or lower.

All students are required to complete a comprehensive examination with at least a minimum passing score on the written portion and a satisfactory performance on the oral portion of the exam. A second and final attempt to pass this

examination may be granted by the student's advisory committee; failure will result in mandatory dismissal from the program.

Graduation Requirements

General Requirements: Each student must earn at least 90 semester hours beyond the bachelor's degree or 57 beyond the master's degree. Credit for the dissertation will range from 18 to 30 semester hours with the decision concerning the credit allowance being made by the student's advisory committee. Early in each student's program of study, a committee composed of graduate faculty in the college will be appointed by the Director of Graduate Studies upon recommendation of the departmental chair.

At least 66 of the 90 semester hours required, including dissertation and research credit, must be in engineering and at least 57 in biomedical, civil, electrical, or mechanical engineering. No more than 15 semester hours credit of 6000 level courses will count toward the 90-hour PhD degree.

Residency Requirements: A minimum of 24 semester hours must be earned while the student is in continuous residence. This may be done in two regular consecutive semesters. If the student is retained as a graduate assistant, the residency requirement may be met over a single continuous twelve-month period provided the student completes eighteen semester hours in two successive regular semesters. A student is not eligible to complete the residency requirement until a minimum of thirty semester hours of graduate study have been successfully completed.

Language Requirements: Students will be required to demonstrate foreign language skills sufficient to understand the major body of pertinent literature in the chosen field of study and to conduct the research necessary for completion of the dissertation or other research as may be required by the advisory committee.

Mathematics Requirements: Based on the qualifying examination required of all The University of Memphis doctoral students, the advisory committee may stipulate that appropriate mathematics courses be made a part of the student's program.

Examination Requirements: All students must take a qualifying examination in accordance with University policy outlined under Minimum Requirements for Doctoral Degrees in this catalog. This examination, which is intended to determine the student's mastery of broad fundamental concepts, will be given only after the student has completed at least thirty semester hours of graduate study. Hence, for students entering the program with a master's degree, the exam will occur shortly after the beginning of the program. The results will be used to prescribe the remainder of the student's academic program, and successful completion of the qualifying exam is required for admission to candidacy as a doctoral student.

The examination will generally be given in written form. However, the student's committee may require an oral session before making a final decision on the student's qualification to continue his/her studies.

After the final semester of coursework, the student will be required to successfully complete written and oral comprehensive examinations that will ascertain the student's mastery of the theoretical material that will underlie the dissertation topic.

At the completion of the dissertation, the student must defend the work before the advisory committee and other interested members of the university faculty who may care to question the results of the research.

Course Requirements: Nine semester hours of major core courses that integrate their doctoral experience are required of all doctoral students. This core is developed by the student's graduate advisory committee. Each concentration requires a minimum of 57 semester hours of coursework and research including the dissertation in the chosen field of study. Each student's program of study will be developed with the advisory committee.

BIOMEDICAL ENGINEERING

*Room 330, Engineering Technology
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EUGENE C. ECKSTEIN, PhD
Chair

STEVEN M. SLACK, PhD
Coordinator of Graduate Studies

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MEMBERS

- JACK W. BUCHANAN, *Associate Professor*,
MSEE (1970), MD (1975), University of Kentucky [2004]
A.U. (DAN) DANIELS, *Professor*,
PhD (1966), University of Utah [2004]
SEMAHAT S. DEMIR, *Associate Professor*,
PhD (1995), Rice University [2004]
DENIS J. DIANGELO, *Associate Professor*,
PhD (1993), McMaster University [2004]
FRANK A. DIBIANCA, *Professor*,
PhD (1970), Carnegie-Mellon University [2004]
EUGENE C. ECKSTEIN, *Professor*,
PhD (1975), Massachusetts Institute of Technology [2004]
CONNIE L. HALL, *Assistant Professor*,
PhD (1995), The University of Memphis [2006]
LAWRENCE M. JORDAN, *Associate Professor*,
PhD (1964), Princeton University [2004]
MOHAMMAD F. KIANI, *Associate Professor*,
PhD (1990), Louisiana Technical University [2004]
ERNO LINDNER, *Associate Professor*,
PhD (1985), Technical University of Budapest; ScD (1994),
Hungarian Academy of Sciences [2005]
ROBERT A. MALKIN, *Associate Professor*,
PhD (1993), Duke University [2007]
MICHAEL R. NEUMAN, *Professor*,
PhD (1966), Case Institute of Technology; MD (1979), Case-Western
Reserve University [2004]
LLOYD PARTRIDGE, (*Emeritus*) *Professor*,
PhD (1953), University of Michigan [2004]
JAE-YONG RHO, *Associate Professor*,
PhD (1991), University of Texas-Dallas [2007]
STEVEN M. SLACK, *Associate Professor*,
PhD (1989), University of Washington [2006]
VINCENT T. TURITTO, *Professor*,
ScD (1972), Columbia University [2002]
MICHAEL R.T. YEN, *Professor*,
PhD (1973), University of California-San Diego [2006]
HERBERT D. ZEMAN, *Associate Professor*,
PhD (1972), Stanford University [2004]

ADJUNCT MEMBERS

- HENRIETTA S. BADA-ELLZEY,
MD (1969), University of Santo Tomas, Manila [2003]
JAMES C. EASON,
PhD (1995), Duke University [2000]
ZHENG FAN,
PhD (1992), Tokoyo Medical and Dental University [2004]
DOUGLAS J. GOETZ,
PhD (1995), Cornell University [2004]
LISA K. JENNINGS,
PhD (1976), The University of Tennessee-Memphis [2003]

- PAUL KOVACS,
PhD (1982), Eotvos Lorand University, Budapest [2003]
- ALAN MAST,
MD/PhD (1991), Duke University [2004]
- BRADFORD D. PENDLEY,
PhD (1992), Cornell University [2002]
- WILBURN E. REDDICK,
PhD (1991), Memphis State University [2003]
- SANJIV SAMANT,
PhD (1988), University of Western Ontario, Canada [2004]
- RICHARD A. SMITH,
PhD (1997), University of Memphis [2003]
- GRANT R. STEEN,
PhD (1985), University of California-Los Angeles [2004]
- RICHARD W. TREHARNE,
PhD (1976), The University of Pennsylvania [2003]
- HAI H. TRIEU,
PhD (1995), Case Western Reserve University [2003]
- CHRISTOPHER M. WATERS,
PhD (1991), Vanderbilt University [2003]

The Department of Biomedical Engineering at The University of Memphis and the School of Biomedical Engineering at The University of Tennessee Health Science Center, Memphis, participate in the Joint Program in Biomedical Engineering. The Joint Program offers graduate programs leading to a Master of Science and a Doctor of Philosophy in Biomedical Engineering. Students may elect courses of study in the following areas: biomaterials, biomechanics, cardiopulmonary engineering, cell and tissue engineering, electrophysiology, medical imaging, and orthopedic biomechanics.

Retention Policy

Students who have been admitted to the program on a conditional basis must make satisfactory progress toward completing all requirements of their conditional admission each semester of enrollment. Failure to make satisfactory progress may result in dismissal from the program.

All students will be required to maintain a grade point average (GPA) of at least 3.00. Should the student's GPA fall below 3.00, a period of one (1) term will be allowed to correct the deficiency. Failure to maintain the minimum GPA is considered sufficient cause for being dismissed from the program. If the student does not correct this deficiency within the one (1) term (not including summer), the student will be dismissed from the program.

Students will be permitted two (2) grades of 2.00 in courses taken at the two universities. Students will be evaluated by their committee at the end of the semester in which a third grade of 2.00 or lower is earned for possible dismissal from the program.

All PhD students are required to complete a comprehensive examination with at least a minimum passing score on the written portion and a satisfactory performance on the oral portion of the exam. A second and final attempt to pass this examination may be granted by the student's advisor committee; failure to pass this exam will result in dismissal from the program.

I. MS Degree Program

A. Admission Requirements

In addition to meeting the minimum admission requirements of the two universities and the Herff College of Engineering, applicants must meet the following criteria established by the Joint Program.

The applicant must have:

1. an appropriate bachelor's degree (biomedical, chemical, electrical, mechanical, or others as defined by the Joint Program);
2. an undergraduate GPA of at least 3.00;
3. a minimum score of at least 500 on each of the verbal, quantitative, and analytical portions of the GRE.

Typical scores on the verbal, quantitative, and analytical portions of the GRE for domestic applicants are 1650 or greater and those for international applicants are 1800 or greater. In addition to meeting the College minimum admission requirements, applicants must meet admission criteria established by their department of study. These are the minimal program admission requirements. Meeting minimum requirements does not guarantee admission into the Master's Degree Program. In addition to the above requirements, applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL).

B. Graduation Requirements

Students may elect to graduate from the Joint Program with a Master of Science in Biomedical Engineering through either a thesis or a project option.

1. **Thesis Option:** Students must complete 30 credit hours, 21 hours of which must be 7000-level or higher course work (or The University of Tennessee equivalent), including BIOM 7209, 6 credits in the life sciences area, 6 credits in mathematics and its applications, and 6 credits of thesis. Oral defense of the thesis to their graduate committee and an oral exam are required.
2. **Project Option:** Students will be required to complete 33 credit hours, 24 hours of which must be 7000-level or higher course work (or The University of Tennessee equivalent), including BIOM 7209, 6 credits in the life sciences area, 6 credits in mathematics and its applications, and

a 3 credit-hour project course. Oral defense of the project to their graduate committee and a written comprehensive exam are required.

II. PhD Degree Program

A. Admission Requirements

In most cases applicants will be considered for admission after completion of the master's degree. For applicants with a master's degree, a graduate GPA of at least 3.3, and a score of at least 1650 on the verbal, quantitative, and analytical portions of the GRE is necessary.

In selected cases of excellence, admission to the doctoral program after completion of the bachelor's degree will be considered. For such applicants, an undergraduate GPA of at least 3.5 and a score of at least 1900 on the verbal, quantitative, and analytical portions of the GRE is required.

These are the minimal program requirements. Meeting minimum requirements does not guarantee admission into the doctoral degree program. In addition to the above requirements, applicants whose native language is other than English must score at least 550 (or 210 computer-based) on the Test of English as a Foreign Language (TOEFL).

Applicants are further advised that the department reserves the right to deny some applications for admission because of limited faculty availability or physical facilities to accommodate the applicant's research interests. In unusual circumstances where the above admission requirements cannot be met, an applicant may seek exceptions by contacting the Coordinator of the Joint Graduate Program.

B. Graduation Requirements

1. **General Requirements:** Students graduating with a Doctor of Philosophy in Biomedical Engineering must complete 90 hours of course work beyond the bachelor's degree or 57 beyond the master's degree. Of the total hours of course work, BIOM 7/8209 and BIOM 7/8105 or their equivalents are required and at least 12 must be in the life sciences and 12 in mathematics. Credit for the dissertation will be 24-30 semester hours. At least 24 credit hours are required; up to 6 additional hours may be permitted as determined by the student's advisor committee. Early in each student's program of study, this committee (composed of graduate faculty) will be appointed by the Coordinator of the Joint Program.
2. **Residency, Language, and Examination Requirements:** These requirements parallel those described earlier for the doctoral program in the Herff College of Engineering.

BIOMEDICAL ENGINEERING (BIOM)

6205. Introduction to Chemical Sensors and Biosensors. (3). Measurement techniques, recognition processes; application of chemical sensors and biosensors for analysis of real samples.

6702. The Tools of Biomedical Engineering Research. (3). Lectures and laboratory work covering basic biochemical and biophysical measurement techniques used by biomedical engineers; topics include light spectroscopy, gel exclusion and affinity chromatography, electrophoresis, immunoblotting, and radioisotopic methods. **PREREQUISITE:** Permission of instructor.

6900-6919. Special Topics in Biomedical Engineering I. (1-3). Topics are varied and are announced in the *Schedule of Classes*.

7004-8004. Life Sciences for Biomedical Engineering I. (3). This introduction and application to aspects of the entire body provides engineers and physical scientists with an understanding of aspects of the chemical, physical, and mechanical basis of cell shape, function, and motility; integrated treatment of topics in cellular biochemistry, protein synthesis, energy releasing pathways, and membrane biophysics.

7005-8005. Life Sciences for Biomedical Engineering II. (3). Continuation of 7004-8004. An introduction for engineers and physical scientists to aspects of systemic physiology with an emphasis on and connections to biomedical engineering.

7103-8103. Theory of Continuous Media. (3). Analysis of stress and deformation at a point; derivation of the fundamental equations in tensor notation by application of the basic laws of conservation of mass, energy, and momentum in mechanics and thermodynamics.

7108-8108. Numerical Methods. (3). Numerical differentiation and integration, computer solutions of linear equations, multiparameter minimization, Monte Carlo methods, and solution of ordinary and partial differential equations.

7110-8110. Biostatistics. (3). Introduction to statistical techniques used for analysis of basic and clinical biomedical engineering data; sampling theory, hypothesis testing, ANOVA, and nonparametric techniques.

7114-8114. Professional Development. (3). Weekly presentations of biomedical engineering research by visiting faculty and invited speakers; weekly presentations by graduate students and discussions of

graduate student research in journal clubs; required of all full-time graduate students.

7115-8115. Computer Applications in Biomedical Engineering. (3). Computer technology with medical applications; basic physiology and biomedical instrument devices and systems.

7203-8203. Bioelectricity. (3). Introduction to electrical propagation through human tissue; membrane biophysics, action potentials, sub-threshold stimuli, electrophysiology of heart, and neuromuscular junction.

7209-8209. Biomedical Measurements and Instrumentation. (3). Measurement techniques applicable in biomedical engineering; data acquisition system, mechanical instrumentation, interface systems, signal analyses; biocompatibility requirements.

7210-8210. Nervous System Function. (3). The function of the nervous system with specific emphasis on applications in biomedical engineering; topics include information handling, effector mechanisms, and control systems.

7215-8215. Advanced Cardiac Electrophysiology. (3). Covers individual channels and bulk transmembrane current flow; passive property modulation; reentrant and automatic arrhythmias; arrhythmogenesis in the acute, subacute and late phase of ischemia and infarction. Students will be expected to prepare and present recent research results.

7220-8220. Advanced Instrumentation and Measurements in Electrophysiology. (3). Advanced instrumentation and measurement techniques in electrophysiology; theory and application of non-invasive measurements of temperature, respiration, and the electrocardiogram; invasive techniques including pacing, defibrillation, and arrhythmia induction and termination.

7222-8222. Biosensors. (3). Provides graduate and upper-level students deeper understanding of chemical sensors and biosensors, with special emphasis on electrochemical biosensors and their in-vivo applications. The lectures and laboratory work will provide the theoretical basis and hands-on experience with macro and micro sensors and their fabrications.

7304-8304. Skeletal Tissue Mechanics. (3). Provides students with a conceptual framework of the field of musculoskeletal system so that the students may be able to (1) design more advanced instruments of diagnosis, (2) make measurements of physiological parameters, as well as (3) design biomaterials to replace skeletal and other components.

7305-8305. Advanced Imaging Instrumentation. (3). Presents both a general overview of the field of digital radiographic imaging and an in-depth treatment of one particular type, the Kinesthetic Charge Detector imaging systems. Topics include the parameterization image quality, physics, and electronics of detection gases. **PREREQUISITES:** BIOM 7501-8501 and BIOM 7501-8502.

7310-8310. Biomechanics. (3). Introduction to physiological systems with emphasis on structure and function of tissue and organs; application of continuum mechanics to understanding of tissue and organ behavior at microscopic and macroscopic levels; design analyses of surgical procedures and prosthetic devices.

7313-8313. Advanced Biomechanics. (3). Modern development of biomechanics at advanced mathematical level; dynamics of the lung, blood flow, microcirculation, and muscle mechanics.

7331-8331. Advances in Orthopedic Biomechanics. (3). The course consists of a sequence of lectures devoted to special topics including: biomechanical analysis and function of upper extremity, lower extremity, and spine joint systems of the human body; and fracture healing and bone remodeling, bone regeneration, function of cartilage, and biomechanics of tendon, ligament, and meniscus.

7408-8408. Biochemical Engineering. (3). Application of engineering principles to effect biochemical transformation through use of living cells, subcellular organelles or enzymes; overview of biotechnology, bioreactor design; cell energetics, enzyme kinetics, Michaelis-Menton calculations, immobilized cells; biosensors and process control.

7409-8409. Cardiovascular Fluid Dynamics. (3). Mechanics of blood circulation, fluid mechanics of the heart, blood flow in arteries, unsteady flow in veins, current concepts in circulatory assist devices and other selected topics.

7423-8423. Biorheology for Biomedical Engineers. (3). Application of biorheology in biomedical engineering and medicine; deformation

and flow of biological materials, tube flow and viscous shear in blood, blood elements and plasma, viscoelastic properties of lung, muscle and other tissues.

7425-8425. Artificial Organs. (3). Basic concepts of blood contacting devices used as replacement for natural organs; artificial kidney, lung, heart-lung bypass, total hearts, pancreas.

7430-8430. Biomaterials. (3). Introduction to materials used in biomedical engineering; biocompatibility and uses of implantable materials such as ceramics, polyethylene, metals, composites and other materials.

7432-8432. Advanced Biomaterials. (3). Materials used in biomedical applications in relationship to corrosion, crack propagation, creep, and related topic; tissue ingrowth into materials.

7452-8452. Fluid Mechanics for Biomedical Engineers. (3). Elements of hydrodynamics with applications to flow in biomedical systems; basic principles of continuity and Navier-Stokes equations; ideal and viscous flow, boundary layer solutions, fluid wave behavior; viscosity of plasma, blood, and viscoelastic fluids, principles of viscometry.

7454-8454. Mass Transport for Biomedical Engineers. (3). Basic principles of mass transport applied to biological systems with particular emphasis on blood surface interactions, especially related to blood coagulation and thrombosis.

7460-8460. Cell Adhesion. (3). Biophysical and biochemical principles governing cell adhesion; integrin and selectin cell adhesion molecules; interactions between leukocytes and tumor cells with endothelium; measurement and modeling of cell adhesion phenomena.

7470-8470. Tissue Engineering. (3). Overview of the fundamental principles and current applications of tissue engineering in medicine and health care; topics include bone and cartilage analogs, synthetic skin grafts, cell encapsulation systems, and biohybrid vascular grafts. **PREREQUISITE:** Permission of instructor.

7480-8480. Experimental Techniques in Cell and Tissue Engineering. (3). Theory and application of basic biochemical and biophysical measurements and instrumentation; topics include light spectroscopy, centrifugation, radiochemical techniques, protein purification, chromatography, electrophoresis, flow cytometry, and immunoblotting.

7515-8515. Biomedical Engineering Design. (3). Engineering design principles pertaining to biomedical engineering; wave propagation in tissue, flow in cardiovascular systems; electrocardiographs, heart valves, mechanical circulation devices, high frequency ventilation, etc.

7712-8712. Biomedical Engineering Laboratory. (3). Demonstrations and experiments on basic concepts of biomedical engineering designs through surgical procedures involving experimental models.

7718-8718. Research Techniques. (3, 6). Presentation of research techniques through organized lectures, special assignments, and selected research topics.

7721-8721. Research Internship for Biomedical Engineers. (3). Independent study for biomedical engineering students in the masters program; investigation in at least one area selected from a master list and approved by the student's advisor.

7722-8722. Advanced Research Internship. (6). Independent research problems for biomedical engineering students; investigations in three different research areas selected from a master list and approved by the student's graduate committee.

7900-7920-8900-8920. Special Topics in Biomedical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7991-8991. Project I. (1-3). Independent study in Biomedical Engineering on topic selected in conjunction with instructor. Oral and written reports required. May be used for curricular training as a part of an internship program.

7992-8992. Project II. (1-3). Independent investigation of problem selected in consultation with instructor. Oral and written reports required. May be used for curricular training as a part of an internship program.

†7996. Master's Thesis. (1-12)

†9000. Doctoral Dissertation. (1-12).

†Grades of S, U, or IP will be given.

The courses listed below are taught at the University of Tennessee Health Science Center, Memphis.

7101-8101. Biomedical Engineering Analysis I. (3). Analytical and numerical solution techniques used in analysis of biomedical engineering problems; introduction to modern computational software packages for experience with modern problem-solving methods.

7102-8102. Biomedical Engineering Analysis II. (3). Continuation of 7101-8101. Advanced techniques for solution of complex problems related to biomedical engineering phenomena; emphasis on use of modern computational software packages for analysis of problems arising in biomedical engineering research.

7105-8105. Physiological Control Systems. (3). Modeling, representation, and analysis of physiological control systems, using control theory techniques. Application will be modeling and control problems in cellular and general physiology. Introduces basic concepts of control systems (transfer functions, feedback control system using root locus, frequency response methods); discusses various biological systems and their natural and driven control mechanisms.

7107-8107. Membrane Modeling. (3). Modeling, representation, and analysis of various cellular systems with applications in smooth, skeletal, and cardiac cells, and neurons. Introduces basic concepts of mathematical modeling along with numerical methods; and discusses various biological systems and models of electrical and chemical activities within and between these biological systems (i.e. cells).

7116-8116. Mathematical Modeling of Biological Phenomena. (3). Applications of mathematics to the understanding of biological systems in biomedical engineering and modern biology; basic concepts of mathematical modeling development and validation; realistic examples of mathematical models in biology.

7303-8303. Movement, Joint, and Implant Mechanics. (3). The course consists of the following sections; muscle and bone anthropometry; kinetics: the link model, mechanical work, energy, and power; kinematics and dynamics of rigid bodies; and the development of mechanically equivalent models of the human musculoskeletal system.

7501-8501. Medical Imaging I. (3). Introduction to theory and physics of medical imaging, basic elements of interactions of radiation with matter; analysis of nuclear magnetic resonance and ultrasound imaging techniques.

7502-8502. Medical Imaging II. (3). Continuation of 7501-8501. Advanced methods in medical imaging; theory and application of magnetic resonance, ultrasonic, nuclear medicine, and X-ray imaging techniques for biomedical engineers.

7506-8506. Advanced Imaging Techniques. (3). In-depth treatment of advanced techniques of image processing and system performance analysis applied to medical image systems. Selected topics may include systematic corrections for digital image acquisition, image reconstruction in the presence of noise, feature enhancement techniques, computed tomography algorithms, and analysis of system/reader performance in diagnostic imaging.

7601-8601. Principles in Biomechanics and Rehabilitative Engineering. (3). Solid mechanics, kinematics, dynamics, and mechanics of materials with applications to human musculoskeletal system; assessment of joint function and movement in normal and pathological conditions.

7605-8605. Product Design for People with Disabilities. (3). Principles and methods of engineering design applied to products which meet functional needs of people with motor and sensory disabilities; students will work together to design and build a working prototype of a new device which solves a problem without current solution.

CIVIL ENGINEERING

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JAMIE W. HURLEY, Professor,
PhD (1975), The University of Florida [2005]
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D.Eng. Science (1976), Columbia University [2006]
MARTIN EDWARD LIPINSKI, Professor,
PhD (1972), University of Illinois [2006]
ROGER W. MEIER, Assistant Professor,
PhD (1995), Georgia Institute of Technology [2004]
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PhD (1983), Mississippi State University [2006]
SHAHRAM PEZESHK, Professor,
PhD (1989), University of Illinois [2005]
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PhD (1971), University of South Carolina [2007]
ROGER H. SMITH, Associate Professor,
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ADJUNCT MEMBERS

- RANDALL W. GENTRY,
PhD (1998), The University of Memphis [2002]
OTTO J. HELWEG,
PhD (1975) Colorado State University [2001]
BRIAN WALDRON,
PhD (1999), Colorado State University [2003]

I. The department of Civil Engineering offers a graduate program leading to a Master of Science degree with a major in Civil Engineering (concentrations in Environmental Engineering, Foundation Engineering, Structural Engineering, Transportation Engineering, and Water Resources Engineering) and a PhD degree with a major in Engineering (concentration in Civil Engineering).

II. MS Degree Program

A. Program Admission

The Herff College of Engineering has established uniform admissions criteria for all graduate programs. Exceptions to these requirements may be addressed by the Graduate Admissions and Retention Committee of the department and must be approved by the Dean.

B. Program Prerequisites

Bachelor of Science Degree

C. Program Requirements

- Thesis option:** 30 credit hours total. Students electing the thesis option will be required to complete an independent research project culminating in a master's thesis. Upon completion of the thesis, the student must successfully pass an oral examination to assess mastery of the thesis topic and to evaluate the student's knowledge in Civil Engineering.
- Non-thesis option:** 33 credit hours total. Students electing the non-thesis option must take CIVL 7001, 7012, and 7993. In addition, non-thesis students must pass a written Civil Engineering Master of Science Examination. This examination will be offered in November and April of each year. This exam will be taken in the student's final semester.
- 24 hours of Civil Engineering course work at the 7000 level. This total includes thesis if that option is selected.
- Concentrations:** Concentration may be made by selection of courses from the following five areas: (No special concentration is required.)
 - Environmental Engineering:** 6140, 6143, 6144, 7140, 7141, 7142, 7143, 7144, 7145, 7146, 7147, 7185, 7195, 7196, 7991, 7996.
 - Foundation Engineering:** 6136, 7132, 7133, 7134, 7182, 7991, 7996, 7130.

- c. Structural Engineering: 6131, 6136, 7001, 7111, 7115, 7116, 7117, 7118, 7119, 7112, 7113, 7991, 7996.
- d. Transportation Engineering: 6162, 6163, 6164, 7001, 7162, 7163, 7164, 7165, 7166, 7168, 7169, 7991, 7996.
- e. Water Resources Engineering: 6180, 6190, 7133, 7153, 7163, 7181, 7182, 7185, 7191, 7192, 7193, 7194, 7195, 7196, 7197, 7991, 7996.

D. Retention Policy

All students enrolled in the Department of Civil Engineering are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention status of students enrolled in the program leading to a Master of Science degree in Civil Engineering.

1. Students having been unconditionally admitted to the graduate program in Civil Engineering who maintain a cumulative grade point average of 3.00 or higher will be considered to be in good standing.
2. Students must maintain a cumulative grade point average of 3.00 in all course work at The University of Memphis, in all Civil Engineering course work at The University of Memphis, and for all 7000 level course work at The University of Memphis at the end of each semester of enrollment. Any student not meeting these conditions will be placed on probation.
3. Students admitted on probation must maintain a 3.00 average at the end of each semester until 9 hours of graduate credit are earned. A student having a cumulative grade point average less than 3.00 at the end of the period described will be dismissed. A student having a cumulative grade point average of 3.00 or above will then be subject to the retention criteria listed in 2 above.
4. A student will be permitted two (2) grades of 2.00 or lower in graduate courses taken at The University of Memphis. A student will be dismissed from the program at the end of the semester in which a third grade of 2.00 or lower is earned.
5. A student who has been dropped from the graduate program in the Department of Civil Engineering will be denied permission to enroll in Civil Engineering courses in semesters subsequent to dismissal from the department.

III. PhD Degree Program

See the beginning of the College section for admission, retention, and graduation requirements.

CIVIL ENGINEERING (CIVL)

6122. Structural Analysis II. (3). Analytical and numerical solutions for statically indeterminate structures. *Three lecture hour a week.* PREREQUISITES: CIVL 3121, 3322.

6131. Intermediate Steel Design. (3). Design of plate girders and composite beams; moment connections; building design. PREREQUISITE: CIVL 3131.

6136. Intermediate Reinforced Concrete Design. (3). Design of two-way slab systems; column design including length effects; integrated building design using current code provisions. PREREQUISITES: CIVL 4122, 4135.

6140. Environmental Engineering Design. (3). Detailed design of one component of an environmental engineering system with appropriate consideration of interactions with other components; design standards, procedures, and legal constraints emphasized. *Three lecture hours per week.* PREREQUISITE: Consent of instructor.

6143. Physical-Chemical Treatment. (3). Basic physical-chemical treatment concepts, including sedimentation, filtration, adsorption, neutralization, coagulation, air stripping, dissolved air flotation, disinfection, and ion exchange, with application of basic concepts to design of water and wastewater treatment systems components. *Three lecture hours per week.* PREREQUISITE: CIVL 3140.

6144. Biological Wastewater Treatment. (3). Basic biological treatment concepts, including kinetics, activated sludge, fixed-film systems, lagoon systems, and sludge digestion, with application of basic concepts to design of biological wastewater treatment system components. *Three lecture hours per week.* PREREQUISITE: CIVL 3140.

6162. Traffic Engineering. (3). Traits and behavior patterns of road users and their vehicles. Includes traffic signs and signals, pavement markings, hazard delineation, capacity, accidents, and parking analysis. PREREQUISITE: CIVL 3161.

6163. Airport Planning and Design. (3). Aeronautical demand and air traffic control; airport and runway configuration; capacity and delay analysis; geometric design of runways and taxiways; airport access and parking; ground movements and baggage movements. PREREQUISITE: CIVL 3161.

6164. Route Location and Design. (3). Elements of route location and design; emphasis on horizontal and vertical alignment, curvature, gradient, and sight distance. *Two lecture, three laboratory hours per week.* PREREQUISITES: CIVL 1101, 3161.

6180. Advanced Hydrology and Hydraulics. (3). Current methods and techniques used in hydrologic and hydraulic analysis for the design of water resources projects; watershed hydrology, groundwater hydrology, flood frequency analysis, flood plain management, hydraulic structures, hydraulic machinery, and project feasibility. *Three lecture hours per week.* PREREQUISITE: CIVL 3181.

6190. Water Resources Planning and Design. (3). Application of engineering principles to planning and design of multipurpose water resources projects; various physical components and appurtenances of water resources projects; and economic, financial, and social feasibility of various purposes. *Three lecture hours per week.* PREREQUISITE: CIVL 3181, 4111 or permission of instructor.

6900-6910. Special Topics in Civil Engineering. (1-3). Topics are varied and announced in the *Schedule of Classes*.

7001-8001. Engineering Analysis. (3). Numerical integration of linear and non-linear differential equations; finite difference methods; systems of linear algebraic equations; applications to engineering problems. PREREQUISITE: Permission of instructor.

7012-8012. Probabilistic Methods in Engineering. (3). Concepts and methods of probability and statistics that are essential for modeling engineering problems under conditions of uncertainty; application to practical problems. PREREQUISITE: Permission of instructor.

7111-8111. Computational Mechanics. (3). Advanced mathematical modeling techniques using finite difference, finite element, and boundary element formulations to solve civil engineering problems. PREREQUISITE: Permission of instructor.

7112-8112. Plastic Design of Steel Structures. (3). (7122). Plastic analysis and design of steel structures; application to multistory buildings. PREREQUISITE: Permission of instructor.

7113-8113. Prestressed Concrete Design. (3). (7121). Theory of prestressing; design of prestressed concrete beams, slabs, and box girders; statically determinate and indeterminate structures. PREREQUISITE: Permission of instructor.

7114-8114. Elastic Stability. (3). Classical theory of buckling of rods, plates, and shells. PREREQUISITE: Permission of instructor.

7115-8115. Plate and Shell Structures. (3). (Same as MECH 7115) Analysis of rectangular and circular flat plates; large deflections of plates; variational methods; analysis of shells as surfaces of revolution under symmetric and unsymmetric loading. PREREQUISITE: Permission of instructor.

7116-8116. Structural Dynamics. (3). Dynamic analysis of single-degree-of-freedom structures; response to general dynamic loading; modal analysis of multistory shear buildings; introduction to nonlinear and random vibration. PREREQUISITE: Permission of instructor.

7117-8117. Finite Element Methods in Structural Mechanics. (3). Structural idealization, stiffness properties of elements, structural analysis of element assemblage; plane stress and strain problems; applications to problems of plates and shells; computer solution of large systems. PREREQUISITE: Permission of instructor.

7118-8118. Design of Structural Systems. (3). Integrated design of buildings or bridges; application of current codes and specifications. PREREQUISITE: Permission of instructor.

7119-8119. Earthquake Resistant Design. (3). Earthquake strong motion; response spectrum analysis; seismic design of buildings. PREREQUISITE: Permission of instructor.

7123-8123. Seismic Risk Assessment of Structures. (3). Evaluation of seismic hazard and site-specific ground motion for critical facilities; analysis of structural reliability and seismic risk. PREREQUISITE: Permission of instructor.

7130-8130. Foundation Analysis. (3). Analysis of footing, raft, pile, and pier foundations; analysis of earth pressures on retaining walls, rigid bulkheads, flexible bulkheads, and braced excavations.

7132-8132. Advanced Soil Mechanics. (3). Stresses in soil masses; pore-water stresses; consolidation and settlement; shear strength; applications to problem solution.

7133-8133. Earth Structures. (3). Analysis, design, and construction of earth dams, levees, embankments and slopes; soil stabilization; seepage, drainage, and flow nets. PREREQUISITE: CIVL 7132-8132.

7134-8134. Foundation Engineering. (3). Critical study of foundation design of completed projects using case records; emphasis on failures and performance records. PREREQUISITE: CIVL 7130-8130, 7132-8132.

7135-8135. Soil Dynamics. (3). Theory and measurements of dynamic properties of soils and their applications in seismic hazards assessments, earthquake engineering design, and geophysics studies. PREREQUISITE: Permission of instructor.

7136-8136. Dynamic Testing of Materials. (3). Theory of and actual laboratory and field measurements of dynamic properties of soils and various construction materials for dynamic analysis and design.

7140-8140. Environmental Law & Regulations. (3). In-depth analysis of the historical and current environmental laws and regulations; development and enactment of environmental laws and associated regulations; interpretation of the laws by engineers and citizens. PREREQUISITE: Permission of instructor.

7141-8141. Water Treatment Plant Design. (3). Design of a water treatment plant; application of fundamental water treatment theory; evaluation of alternatives; selection and design of optimum alternative. PREREQUISITE: CIVL 6143 or permission of instructor.

7142-8142. Wastewater Treatment Plant Design. (3). Design of a wastewater treatment plant; application of fundamental wastewater treatment theory; evaluation of alternative; selection and design of optimum alternative. PREREQUISITE: CIVL 6144 or permission of instructor.

7143-8143. Solid Waste Management. (3). Systems approach to solid waste generation, characterization, collection, transportation, and disposal; emphasizes both domestic and industrial wastes. PREREQUISITE: Permission of instructor.

7144-8144. Residuals Management and Resource Recovery/Recycling. (3). Systems approach to unique solid wastes (inflammable industrial, sewage sludge, etc.), as well as resource recovery and energy conversion as disposal practices. PREREQUISITE: Permission of instructor.

7145-8145. Advanced Biological Treatment. (3). In-depth study of biokinetics applicable to waste management; model evaluations; hazardous and non-hazardous wastes. PREREQUISITE: CIVL 6144.

7146-8146. Advanced Physical/Chemical Treatment. (3). An in-depth analysis of theory and practice of advanced water and wastewater treatment processes; emphasis on adsorption processes, ion exchange, membrane processes, chemical oxidation, land treatment, nutrient removal, and sludge treatment and disposal. PREREQUISITE: CIVL 6143 or permission of instructor.

7147-8147. Hazardous Waste Management. (3). Design of hazardous waste management systems; application of current design theories; review of regulatory requirements. PREREQUISITE: Permission of instructor.

7153-8153. Water Quality Modeling of Streams. (3). Water quality model conceptualization; emphasis on geometric representation, temporal variation, hydrodynamic considerations, and solution techniques; water quality models incorporating physical, biological, and chemical processes; verification of water quality models; case histories. PREREQUISITE: Permission of instructor.

7154-8154. Industrial Wastewater Treatment. (3). In-plant control measures and end-of-pipe treatment technologies for reducing conventional and toxic industrial pollutant discharges; emphasis on water conservation, wastewater recycle/reuse, and optimum treatment strategies for waste streams from major industries. PREREQUISITE: Permission of instructor.

7162-8162. Transportation Systems Evaluation. (3). Transportation problems, goals, and objectives; evaluation and decision-making techniques; measurement of variables and intangibles in transportation decisions, cost allocation and benefit transfer, risk and uncertainty; financing and implementation; differential impacts of transportation improvements. PREREQUISITE: Permission of instructor.

7163-8163. Transportation on Inland Waterways. (3). Inland waterways (IWW) freight characteristics and floating equipment; extent and nature of IWW in U.S.; terminal sites and harbors, intermodal and ocean freight interrelationships; materials handling at terminals; terminal types and geometrics; problems and solutions. PREREQUISITE: Permission of instructor.

7164-8164. Urban Transportation Engineering. (3). A review of the transportation problem as it relates to development patterns in American cities. The theory and application to engineering and socioeconomic factors directed toward the formulation of models for conducting transportation studies. PREREQUISITE: Permission of the instructor.

7165-8165. Geometric Design of Transportation Systems. (3). Design of streets and highways with emphasis on the factors and features controlling safe and efficient vehicle operation; applications of design concepts to urban and rural systems, intersections, interchanges, safety appurtenances, and parking facilities. PREREQUISITE: CIVL 6164 or permission of instructor.

7166-8166. Design of Highway and Airport Pavements. (3). Design practices, materials, and testing of flexible and rigid pavements. PREREQUISITE: Permission of instructor.

7168-8168. Traffic Engineering Operations. (3). Theory of traffic control: traffic laws and ordinances; application of traffic control devices; analysis and design of traffic signal systems, parking control and design pedestrian control; one-way and unbalanced lane operation, roadway illumination; selected operational problems. PREREQUISITES: CIVL 6162 or permission of instructor.

7169-8169. Mass Transit Systems. (3). Operational analysis of equipment and facility design and service characteristics of urban mass transit systems; analysis of capacity, speed, accessibility, terminal operations; study of financing, decision-making, administration and marketing policies and practices, trends in future transit technology. PREREQUISITE: Permission of instructor.

7170-8170. Ground Water Contaminant Fate and Transport. (3). Elements of ground water contamination and migration; study of various contaminant transport modeling techniques; analysis of numerical dispersion and stability criteria; chemical reactions; discussion of analytical solutions. PREREQUISITE: Permission of instructor.

7173. Environmental Geochemistry. (3). (Same as GEOL 7140). Inorganic and organic geochemical concepts applied to transport and fate of contaminants in surface water, ground water, and sediment. *Three lecture hours per week.* PREREQUISITES: GEOL 6341 and permission of instructor.

7177-8177. Quantitative Hydrogeology. (3). Analysis of ground water parameters; geostatistics of aquifer properties used in ground water modeling via various techniques; salt water intrusion. PREREQUISITE: CIVL 7195-8195 or permission of instructor.

7181-8181. Statistical Hydrologic Modeling. (3). Current statistical techniques used in stochastic, deterministic, and parametric hydrologic models; emphasis on probability and frequency analysis; optimization methods; time series analysis and synthesis; sensitivity analysis; computer applications. PREREQUISITE: Permission of instructor.

7182-8182. Engineering Aspects of Sedimentation and Erosion. (3). Soil erosion and sedimentation process within a watershed; emphasis on means of controlling erosion and sediment from land-disturbing activities. PREREQUISITE: Permission of instructor.

7185-8185. Hydraulics of Open Channels. (3). (7148). Phenomena accompanying flow of water in open channels, uniform and varied flow, critical conditions, backwater curves or water surface profiles, hydraulic jumps, hydraulic drops, and various design applications. PREREQUISITE: Permission of instructor.

7191-8191. Computer Application in Water Resources. (3). Application of current computer programs used in hydrology, hydraulics, sediment transport, groundwater flow, water quality, and water resources engineering and planning. PREREQUISITE: Permission of instructor.

7192-8192. River Engineering. (3). River mechanics and principles governing river regulation and improvement, with emphasis on navigation and flood control structures. PREREQUISITE: CIVL 7185-8185 or permission of instructor.

7193-8193. Hydraulics of Sediment Transport in Rivers and Lakes. (3). River mechanics and stream morphology governing hydraulics of bed loads and sediment transport in alluvial river system; current methods for conducting sediment investigation; engineering analysis procedures for design of stable channel system. PREREQUISITE: Permission of instructor.

7194-8194. Computation River Hydraulics. (3). (7149). Advanced studies in computational open channel hydraulics; major emphasis on

unsteady flow simulation in natural rivers, dynamic flood routing, sediment transport and transport of pollutants. **PREREQUISITES:** CIVL 7001-8001 and CIVL 7185-8185, or permission of instructor.

7195-8195. Groundwater Hydraulics. (3). Geological contributions to ground water flow; ground water contribution to water demand and conjunctive use; well hydraulics, design and construction, pump selection; determine aquifer properties via field well tests. **PREREQUISITE:** Permission of instructor.

7196-8196. Urban Drainage. (3). Flooding and pollution problems associated with urban areas; application of planning, analysis, and hydraulic design techniques for storm water and erosion control measures. **PREREQUISITE:** CIVL 7185-8185 or permission of instructor.

7197-8197. Ground Water Quality Control. (3). Analysis of ground water quality and contamination problems; study of multispecies chemical reactions and radioactive microbiological decay; techniques for monitoring, and site remediation of ground water problems. **PREREQUISITE:** CIVL 7170-8170 or permission of instructor.

7900-10-8900-10. Special Topics in Civil Engineering. (1-3). Topics are varied and announced in the *Schedule of Classes*.

7991-8991. Projects. (3). Independent investigation of problem selected in consultation with instructor; report required. *Nine laboratory hours per week.*

7993-8993. Project and Report. (3). Independent study for students in non-thesis option program. Students demonstrate ability to pursue, complete, and report on project related to Civil Engineering practice. Written and oral report prepared for acceptance by faculty committee. *Nine laboratory hours per week.*

†7996. Thesis. (1, 3, or 6).

†9000. Dissertation. (1-12).

†Grades of S, U, or IP will be given.

ELECTRICAL AND COMPUTER ENGINEERING

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PhD (1990), Memphis State University [2003]

PHILLIP LIM,

MS (1994), The University of Memphis [2003]

WILBURN E. REDDICK,

PhD (1991) Memphis State University [2003]

I. The Department of Electrical and Computer Engineering offers graduate programs leading to the Master of Science degree with a major in Electrical Engineering (concentrations in Automatic Control Systems, Communications and Propagation Systems, Electro-optical Systems, and Engineering Computer Systems) and a PhD degree with a major in Engineering (concentration in Electrical Engineering).

II. MS Degree Program

A. Admission Requirements

The department uses the college admission criteria with selected terms defined below.

1. Appropriate bachelor's degree. An official transcript showing a bachelor's degree awarded by an accredited college or university with an acceptable grade point average will be used by the department to determine an appropriate bachelor's degree. An applicant who lacks an appropriate bachelor's degree may be required to complete undergraduate deficiency courses. If the number of deficiency courses is large, the applicant may be required to complete an undergraduate degree in Electrical or Computer Engineering before seeking admission to the graduate program. Appropriate bachelor's degree is defined as an ABET accredited degree in Electrical or Computer Engineering. Material equivalent to the intersection of the undergraduate programs in electrical or computer engineering will be required of applicants without the appropriate bachelor's degree.

Deficiency courses may be appealed by the following steps:

- a. The student contacts his or her academic advisor requesting that specific deficiency courses not be required.
- b. If in agreement, the student's academic advisor forms an appeals committee composed of at least three members of the graduate faculty.
- c. The appeals committee meets, considers the request, and forwards a recommendation in writing to the graduate coordinator.
- d. If the graduate coordinator disagrees with the recommendation, the student is referred to the department chair for disposition of the matter.

B. Program Requirements

1. Thesis option. 30 semester hours, including a thesis (6 semester hours). An average grade of 3.00 must be maintained in ALL Electrical and Computer Engineering graduate coursework.
 - a. No more than 9 semester hours may be taken outside the department. Advisor's approval is required.
 - b. At least 21 hours at the 7000 level are required, of which at least 18 hours must be in Electrical and Computer Engineering, including either EECE 7100 or 7251.
2. Non-thesis option. 33 semester hours. An average grade of 3.00 must be maintained in ALL Electrical and Computer Engineering graduate coursework.
 - a. No more than 9 semester hours may be taken outside the department. Advisor's approval is required.
 - b. Each student will be required to complete EECE 7991 or EECE 7992 for a total of at least 3 hours.
 - c. At least 23 semester hours at the 7000 level required, of which at least 18 hours must be in Electrical Engineering, including either EECE 7100 or 7251.
3. All students are required to pass a comprehensive exam during their last semester.
4. Students may elect to pursue graduate work in one of the following areas of concentration by completing 21 semester hours of coursework. At least 12 of the 21 semester hours must be taken at the 7000 level.
 - a. Electro-optical Systems: EECE 6241, 6242, 6243, 7211, 7214, 7243, 7245.
 - b. Automatic Control Systems: EECE 6251, 6252, 6253, 7100, 7240, 7251, 7252, 7521, 7522, 7523, 7524.
 - c. Engineering Computer Systems: EECE 6222, 6230, 6232, 6270, 6272, 6274, 6270, 6730, 7214, 7215, 7240, 7261, 7262, 7267, 7720.
 - d. Communications and Propagation Systems: EECE 6230, 6232, 7211, 7231, 7232, 7233, 7251, 7252, 7253.

Note: Projects I or II (EECE 7991 or 7992) or Thesis (EECE 7996) may be taken for credit in any of the areas of concentration.

C. Retention Requirements

All students enrolled in the Department of Electrical and Computer Engineering are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention

status of students enrolled in the program leading to a Master of Science degree in Electrical Engineering.

1. Students having been unconditionally admitted who maintain a cumulative grade point average of 3.00 or higher will be considered to be in good standing if no more than two (2) grades of 2.00 or lower have been earned. (See item 3 below).
2. Students must maintain a cumulative grade point average of 3.00 at the end of each semester of enrollment in all course work at The University of Memphis, including all Electrical and Computer Engineering courses work and all 7000 level course work. Any student not meeting these conditions will be placed on probation by the department.
3. A student will be permitted two (2) grades of 2.00 or lower in graduate courses taken at The University of Memphis. A student will be dismissed at the end of the semester in which a third grade of 2.00 or lower is earned.
4. A student who has been dropped from the graduate program in the Department of Electrical and Computer Engineering will be denied permission to enroll in Electrical and Computer Engineering courses in semesters subsequent to dismissal from the department.
5. Courses applied to the MS degree program requirements must have the advisor's approval.

III. PhD Degree Program

See the beginning of the College section for admission, retention, and graduation requirements.

A. Program Requirements

Students entering the PhD program at the master's level must take the PhD Qualifying Examination prior to registering for their third semester in the PhD program. Failure to do so may prevent the student from registering for the third semester.

ELECTRICAL AND COMPUTER ENGINEERING (EECE)

6202. Electrical Power Systems. (3). Investigation of problems associated with the transmission of electrical energy; load-flow studies, and fault analysis by use of symmetrical components.

6204. Power Distribution Systems. (3). Distribution of power from transmission systems to users: primary and secondary feeders; voltage regulation; underground, overhead and network design; lightning and protective device coordination.

6213. Antenna Theory and Design (3). Theory of operation and design of antennas; determination of antenna radiation characteristics; introduction to antenna array theory. PREREQUISITE: Permission of instructor.

6214. EM Fields Laboratory. (1). Laboratory techniques associated with frequencies above 100 MHz. COREQUISITE: EECE 6215 or permission of instructor.

6215. EM Fields Applied to Telecommunications. (3). Steady state and transient solutions of transmission line equations; plane waves; antennas in telecommunications. PREREQUISITE: Permission of instructor.

6221. Electronics III. (4). Applications of analog and digital electronic circuits; special purpose circuits and devices. *Three lecture, three laboratory hours per week.*

6222. Digital Logic and Computer Design. (3). Applications of digital system design using MSI, LSI, and VLSI circuits; design of arithmetic logic units, multiple input controllers, and practical interfacing techniques.

6230. Data Communications Systems. (3). Data communications in information and computing systems; analog and digital means of transmitting and controlling information; organization and requirements of data communication systems, including modulation and demodulation, multiplexing, switching, error detection and correction.

6231. Communication Theory. (3). Frequency and time domain; modulation, random signal theory; autocorrelation; noise, communication systems.

6232. Discrete Signal Processing. (3). Introduction to discrete-time signal analysis; discrete system concepts, discrete-time Fourier analysis, sampling of continuous-time signals, z-transform, and transform analysis of discrete systems; structures for discrete-time systems and discrete filter design techniques.

6235. Random Signal Analysis. (3). Analysis of signals using techniques of probability and statistics; introduction to probability, random processes and statistics; discrete signals and analog signals with

random components in time, spatial, and frequency domains; autocorrelation, cross-correlation, and power spectra applied to various signals; effects of discrete filters, and analog.

6241. Solid State Physical Electronics. (3). Quantum concepts; statistics; crystal structure; conduction processes in solids; p-n junctions and devices; field effect devices; charge transfer devices. PREREQUISITE: EECE 3211.

6242. Electro-Optics. (3). Classical optics including Gaussian optics, Newtonian optics, and vergence theory; optical design with aberration concepts, F-numbers, pupils and stops; radiometry with respect to flux transfer calculations; light sources and detectors.

6243. Linear Optical Systems. (3). Review of Fourier techniques for analysis and design of linear systems, extension to 2-d methods; 2-d transforms applied to linear optical systems and data processing.

6251. Control System Engineering. (3). General equations of physical linear systems and their transfer functions; transient analysis and stability of control systems; Bode plots, Nichols plot, Routh-Hurwitz criterion, root locus method, introduction to compensation techniques and systems in state space.

6252. Digital Control Systems. (3). Problems involved with and analysis techniques applicable to digital control systems. Requires a prior knowledge of Laplace transforms. Basic knowledge of feedback control theory desirable.

6253. Control Systems Laboratory. (1). Investigation of fundamental properties associated with analysis of control systems, compensating networks, analog and digital computer simulations. COREQUISITE: EECE 6251 or 6252.

6254. Digital Control Systems Laboratory. (1). Fundamental properties associated with digital control systems engineering; laboratory procedures in analysis of digital control systems, compensating networks, digital computer simulations and PLCs. CORREQUISITES: EECE 6252.

6270. Introduction to Microprocessors. (4). LSI circuitry, microprocessor architecture, hardware and software, applications and system design. *Three lecture, three laboratory hours per week.*

6272. Engineering Software. (3). Procedural and object-oriented programming techniques using C and C++. Introduction to Unix. PREREQUISITE: Permission of instructor.

6273. Database Engineering. (3). Logical database design emphasizing entity-relationship, relational, object-oriented, and logic data models; design theory for relational databases, relational query languages, and introduction to integration of database and knowledge-base systems for engineering applications; emerging trends in database machine design and implementation. PREREQUISITES: COMP 3160 or permission of instructor.

6274. Software Design with ADA. (3). Introduction to ADA; detailed software design methodology using structured and object oriented techniques for large systems; reusable components, ADA programming support environment. PREREQUISITE: Knowledge of a structured high order language.

6275. Network Programming. (3). Introduction to engineering of computer networks, network hardware, and network software; design of software systems for network applications. PREREQUISITES: EECE 1207 and EECE 3221.

6276. Advanced Network Programming. (3). Advanced methods for engineering software systems for network applications; topics include implementations of distributed object models, remote database connectivity, and reusable software components. PREREQUISITES: EECE 4275 or permission of instructor.

6277. DSP Microprocessors. (4). Architecture and instruction set of fixed-point and floating-point devices; hardware interfacing, host communications, real-time signal generation, filtering, and code development using assembly language and C. PREREQUISITES: EECE 2222 and EECE 3202.

6720. Introduction to Artificial Intelligence. (3). (Same as COMP 6720.) Fundamentals of programming in LISP; central ideas of artificial intelligence, including heuristic search, problem solving, slot-and-filler structures, and knowledge representation.

6730. Expert Systems. (3). (Same as COMP 6730.) Fundamentals of programming in PROLOG, central ideas of expert system develop-

ment, including knowledge representation, control structures, tools, knowledge acquisition, and knowledge engineering.

6900-09. Special Topics in Electrical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7100-8100. Linear Systems Analysis. (3). Systems concepts and mathematical tools including Z-transforms; analysis of systems, both continuous and discrete, in the time domain and frequency domain.

7211-8211. Advanced Electromagnetic Field Theory. (3). Advanced studies in electromagnetic fields, radiation, and propagation of energy.

7214-8214. Image Processing. (3). Theory and applications of digital image processing, sampling, quantization, enhancement and restoration of images; use of segmentation, descriptors, and pattern recognition; architectures for image processing.

7215-8215. Digital Signal Processing. (3). Application of discrete transform theory to spectral analysis, digital filters, random signal analysis. PREREQUISITE: Permission of instructor.

7230-8230. Solid State Devices. (3). Internal function, limitations, and applications of unique components found in modern telecommunication designs; electro-optic devices, detectors, resonators, antenna, and negative resistance components. PREREQUISITE: EECE 7231.

7231-8231. Communication Electronics. (3). Analysis and design of small and large signal amplifiers; multistage amplifiers; analysis and design of oscillators; feedback and stability in amplifier design.

7232-8232. Analog Communication Circuit Design. (3). Design and applications of analog communication systems; transmitter and receiver technologies. PREREQUISITE: EECE 7231 or permission.

7233-8233. Power Electronics. (3). Power semiconductor switches, rectifiers, phase-controlled rectifiers, and other power control devices; power control applications.

7243-8243. Fourier Optics. (3). Analysis of two-dimensional linear systems, scalar diffraction theory, Fresnel and Fraunhofer diffraction; Fourier transforming properties of lenses, spatial frequency analysis of optical systems, optical information processing and holography.

7245-8245. Statistical Optics. (3). Techniques for describing random processes applied to generation, propagation, imaging, and detection of light; statistical properties of light, coherence, imaging with inhomogeneous media, statistics of photoelectric detection of light.

7251-8251. Random Signals and Noise. (3). Statistical methods for describing and analyzing random signals and noise; auto-correlation, cross-correlation, and spectral density functions; optimal linear filter theory.

7252-8252. Information Theory. (3). Introduction to entropy and channel capacity, group codes, block codes, cyclic codes; application of coding techniques to improve system reliability; error correcting codes. PREREQUISITE: EECE 7251 or permission of instructor.

7253-8253. Wireless Telecommunications. (3). Principles of wireless telecommunication systems with emphasis on cellular telephony and on wireless data communication; requirements and standards along with physical layer properties and multiple access techniques including spread spectrum techniques (CDMA).

7261-8261. Architecture and Design of Digital Computers. (3). Advanced logical design of hardware and organization structure of digital computers; architectural properties and control strategies; processor and memory organizations, addressing and interrupt structures, and I/O controllers; hardware and software trade-offs, and speed considerations.

7262-8262. Logical Foundations of Artificial Intelligence. (3). (Same as COMP 7750-8750). Logical foundations of artificial intelligence, predicate calculus, declarative knowledge, inference, resolution strategies, non-monotonic reasoning, induction, probabilistic logic, belief, state and change, and intelligent-agent architecture. PREREQUISITE: Permission of instructor.

7266-8266. PROLOG Processing for Intelligent Systems. (3). The engineering of intelligent systems using the PROLOG language for implementation; advanced PROLOG processing, hardware, and software architecture for PROLOG-based machines. PREREQUISITE: EECE 6720 or 6730 or permission of instructor.

7267-8267. LISP Processing for AI Applications. (3). Fundamentals of LISP programming, symbolic processing, searching, goal reduction, matching, problems and problem spaces, problem solving methods, and AI applications.

7268-8268. Object-Oriented Data Engineering. (3). Design of hardware and software from a perspective of interacting objects that combine data and behavior; engineering data models, analysis and design processes, implementation, large engineering system issues, and reverse engineering; object-oriented database design for CASE, CAD/CAM, and related engineering database environments.

7273-8273. Modern Microprocessors. (3). Introduction to capabilities of state-of-the-art microprocessors and their supporting components.

7521-8521. Advanced Control System Engineering. (3). Cascade and feedback compensation; analysis and control of nonlinear systems; introduction to optimal techniques. PREREQUISITE: EECE 6251 or permission.

7522-8522. Stochastic and Adaptive Controls Theory. (3). Principles and applications of deterministic and statistical design; random processes in automatic control.

7523-8523. Theory of Optimal Control Systems. (3). State variable description of systems, maximum principle of Pontryagin, optimization of linear systems with quadratic performance measures, time and field optimal systems.

7524-8524. Parameter Estimation and Controls. (3). Principles of parameter estimation and application to systems engineering.

7720-8720. Artificial Intelligence. (3). (Same as COMP 7720-8720). Central issues of artificial intelligence, including game playing, planning, machine learning, common-sense reasoning, perception and action; implementations in LISP. PREREQUISITE: EECE 6720.

7740-8740. Neural Networks. (3). (Same as COMP 7740-8740). Learning algorithms for multilayer perceptrons, least-mean squares, back-propagation and its variants, cascade-correlation, other supervised learning algorithms; unsupervised methods, including Hebbian, competitive and reinforcement learning; applications to associative memories, combinatorial optimization, component analysis, function approximation, pattern classification; theory of neurodynamics, including equilibrium, stability, and computational power.

7900-10-8900-10. Special Topics in Electrical Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*.

7991-8991. Projects I. (1-3). Independent investigation of a problem selected in consultation with instructor; report required. Repeatable by permission.

7992-8992. Projects II. (1-3). Independent investigation of a problem selected in consultation with instructor; report required. Repeatable by permission.

†7996. Thesis. (1-12). Master's thesis. Only six hours are applicable to the degree.

8990. Research Practicum. (6). Problem-solving research activities in engineering. Student assigned a project that is either being conducted currently by faculty member or one developed under supervision of faculty member. Whenever possible, project will be within student's major field of study.

†9000. Dissertation. (1-12).

† Grades of S, U, or IP will be given.

ENGINEERING TECHNOLOGY

Room 203 Technology Building

RONALD L. DAY, MA
Chair

DEAN LANCE SMITH, PhD
Coordinator of Graduate Studies
Room 206 Technology Building
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MEMBERS

DEBORAH HOCHSTEIN, Associate Professor,
MSE (1984), The University of Akron [2007]
DEAN LANCE SMITH, Assistant Professor,
PhD (1972), The University of Michigan [2004]

ASSOCIATE MEMBERS

RONALD L. DAY, Associate Professor,
MA (1970), Western Kentucky University [2007]
HANK JAVAN, Assistant Professor,
PhD (1980), Washington University [2006]
CARL R. WILLIAMS, Assistant Professor,
MBA (1983), Memphis State University [2004]

I. The Department of Engineering Technology offers a graduate program leading to the Master of Science degree with a major in Engineering Technology. Concentrations are available in Architecture, Electronics, and Manufacturing; however, students are no longer being admitted to the Architecture concentration.

II. MS Degree Program

A. Program Admissions

Admission requirements of the College.

B. Program Prerequisites

Applicant must have completed a minimum of 18 semester hours of upper division credit in an appropriate area of Technology or related area.

C. Program Requirements

1. **Non-thesis option.** A minimum of 33 semester hours. Students selecting the non-thesis option must complete TECH 7991, Projects I.
2. **Thesis option.** A minimum of 30 semester hours. Students must complete TECH 7996, Thesis, for six semester hours credit.
3. Each student must complete the following core courses: TECH 7015, 7020, and MGMT 7030.
4. A minimum of 12 semester hours must be taken in one concentration area.
5. Candidates for the degree must average a 3.0 in all Technology courses.
6. Candidates for the degree must pass a comprehensive examination.
 - a. Comprehensive examinations may be taken by students in good standing during the last term of course work.
 - b. The comprehensive written examination will be administered Monday of the tenth week of classes during the fall and spring semesters.
 - c. A follow-up oral examination is optional with the examining committee.
7. Concentrations may be made by selection of courses from the following areas:
 - a. Electronics: 6241, 6262, 6272, 6281, 7233, 7263, 7273, 7283, 7801, 7811, 7821, 7822, 7831, 7841.
 - b. Manufacturing: 6472, 6474, 6476, 7401, 7402, 7404, 7406, 7408, 7414.

COMPUTER ENGINEERING TECHNOLOGY (CETH)

6241. Internet Technology. (4). Internet servers and protocols; Internet e-mail using Simple Mail Transfer Protocol, STMP; World Wide Web, WWW; Transmission Control Protocol/Internet Protocol, TCP/IP; Telnet Protocol; Hypertext Transport Protocol, HTTP; Hypertext Markup Language, HTML; File Transfer Protocol, FTP; Uniform Resource Locator, URL. *Three lecture, three laboratory hours per week.* PREREQUISITE: CETH 2251.

6262. Modern Programming. (4). Application of Java programming language to problems from selected area of engineering technology; includes data collecting, modeling techniques, constraints, program

development and validation, and interfacing with peripherals and machine language. *Three lectures, three laboratory hours per week.* PREREQUISITES: CETH 2261 and 3233.

6272. Operating Systems. (4). Memory management, processor management, device management, and file management; MS-DOS operating system, Windows NT, UNIX operating system, VAX/VMS operating system. *Three lecture, three laboratory hours per week.* PREREQUISITES: CETH 2261 and 3233 or permission of instructor.

6281. Computer Network Technology. (4). Local-area networks; interconnecting computers and peripherals; installation of network hardware and software; communications between computers; sharing peripherals. *Three lecture, three laboratory hours per week.* PREREQUISITE: CETH 2261 and 3232.

7233. Advanced Software Applications. (3). Use of compilers, assemblers, program translators, application generators, program generators; application software for computer-aided design and data communications. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7263. Advanced Digital Circuits and Applications. (3). (TECH 7263). Pragmatic treatment of analysis, synthesis, and applications of digital integrated circuits and systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7273. Advanced Microprocessor Architecture. (3). (TECH 7273). Structure of the microprocessor, Bit-slice and monolithic systems; ALU design, data transfer and storage registers, and control unit logic; microprogramming techniques. *Three lecture hours per week.* PREREQUISITE: Permission of instructor.

7283. Advanced Data Acquisition. (3). (TECH 7283). Use of digital and analog circuits to accomplish the computer analysis of empirical data; transducers, digital and analog conversions, linear and operational amplifiers, interfacing techniques; data scaling and manipulation. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

ELECTRICAL ENGINEERING TECHNOLOGY (EETH)

7801. Precision Measurements. (3). (TECH 7801). Review of linear and electronics fundamentals; analysis, synthesis, specifications, and applications of electronic test equipment and systems. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7811. Technology of Electronic Communication Systems. (3). (TECH 7811). Engineering and economic aspects in the design and operation of publicly and privately owned communication systems. PREREQUISITE: Permission of instructor.

7821. Advanced Microwave Technology. (3). (TECH 7821). Microwave theory and equipment applications, including techniques for measuring power, frequency, frequency spectrums, impedance, VSWR, reflection coefficient, circuit Q, noise, and antenna gain. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7822. Industrial Process Control Systems. (3). (TECH 7822). Simulation and pragmatic analysis of closed loop industrial control systems using programmable logic controllers; practical considerations of control loop quality and stability; applications of digital computer for direct and supervisory control and on-line analysis. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7831. Advanced Integrated Circuits Technology. (3). (TECH 7831). Theory and applications of integrated circuits and systems, emphasizing linear integrated circuits; characteristics, power requirements, and applications to amplifiers, oscillators, demodulators, waveshaping circuits, active filters, converters, and troubleshooting techniques. *Two lecture, three laboratory hours per week.* PREREQUISITE: Permission of instructor.

7841. Fiber Optics in Communication and Other Applications (3). (TECH 7841). Practical approach and theoretical analysis of fiber optics; emphasis on fiber optics transmission and system performance; practical aspects of fibers connection and loss encountered; fiber optics components such as couplers and switches. PREREQUISITE: EETH 3811 or permission of instructor.

MANUFACTURING ENGINEERING TECHNOLOGY (METH)

6472. Computer Aided Drafting and Design. (3). Overview of CADD Technology, hardware and software options (two and three dimensional principles) and applications to produce computer generated designing and working drawings. *Two lecture, three laboratory hours per week.* PREREQUISITE: TECH 1521 or equivalent.

6474. Automation and Robotics. (3). (TECH 6474). Concepts of automation applied to production, distribution, and industrial robotics. *Two lecture, three laboratory hours per week.* PREREQUISITE: TECH 1010 or CETH 1211.

6476. Computer Aided Manufacturing. (3). Computer numerical control programming by manual data input and distributed numerical control by computer assistance; system assessment of CNC machines and components for the integrated manufacturing environment. *Two lecture, three laboratory hours per week.* PREREQUISITE: CETH 3281 or METH 4472.

7401. Advanced Work Design and Measurement. (3). (TECH 7401). Philosophy and practice of waste reduction in process or service system; review of work measurement techniques; advanced study of performance rating, standard data, basic motion time system, learning curves, time formula construction and work sampling. PREREQUISITE: METH 4460 or permission of instructor.

7402. Advanced Statistical Quality Control. (3). (TECH 7402). Taguchi methods for improved process and product design; loss function, ANOVA, orthogonal arrays and linear graphs, multiple level experimental design, parameter and tolerance design. PREREQUISITE: METH 4462 or permission of instructor.

7404. World-Class Manufacturing. (3). (TECH 7404). World-class manufacturing concepts and companies that have successfully implemented Just-in-Time, total quality control, and continuous improvement techniques. PREREQUISITE: METH 4464 or permission of instructor.

7406. Materials Handling Systems. (3). (TECH 7406). Analysis, design, and evaluation of traditional and contemporary approaches to materials handling; analytical and computer procedures for designing handling systems. PREREQUISITE: Permission of instructor.

7408. Production Processes. (3). (TECH 7408). A coordinated study of manufacturing processes and equipment, operation sequence planning, economic aspects of equipment selection, tooling and processing a product from product design to final assembly for quantity production.

7414. Group Technology and CIM. (3). (TECH 7414). Applications of Group Technology (GT) and Computer-Integrated Manufacturing (CIM); integrating materials management and shop-floor-data acquisition and control. PREREQUISITE: METH 6474 or permission of instructor.

TECHNOLOGY (TECH)

6510. Construction Planning and Scheduling. (3). Principles of planning, scheduling, organizing, and controlling construction projects; studies in critical path method (CPM) and PERT, with resource leveling and financial scheduling; computer applications in CPM and PERT emphasized.

6520. Construction Methods and Equipment. (3). Theory and practice of construction operations, equipment, utilization, construction methods; analysis of costs, crew, and equipment.

7015. Applied Statistical Methods of Industry. (3). Application of statistical concepts to production processes and data gathering in industry including frequency, distribution, location and dispersion, probability dispersions, confidence limits, significance tests, and industrial sampling.

7020. Technical Research Writing. (3). Investigations into the development and writing of technical research, emphasizing literature review, data collection, data analysis, and presentation of findings in a proposal format; written and oral presentations will be stressed in the course. PREREQUISITE: Permission of instructor.

7105. Project Planning and Scheduling. (3). Contemporary methods used in project planning and scheduling; emphasis on critical path

method (CPM) with computer application; solution of actual problems stressed.

7991. Projects I. (3). Independent investigation of a problem selected in consultation with instructor; report required. PREREQUISITE: permission of instructor.

7992. Projects II. (3). Independent investigation of a problem selected in consultation with instructor; report required. PREREQUISITE: permission of instructor.

†7993. Internship in Engineering Technology. (3). Practical experience in engineering technology; students are placed with governmental or private organizations; project must be approved and supervised by department faculty; academic credit granted on certification of cooperating agency and acceptance by the supervising faculty of written report. May be repeated for total of six semester hours credit. PREREQUISITE: Permission of instructor.

†7994. Seminar. (1). Presentations by faculty, members of local industry, and graduate students. May be repeated for up to 6 hours credit. Must be taken at least 3 times to count as an elective in the master's program. Required for all full-time students.

†7996. Thesis (1-6). Writing of the thesis with emphasis on adequate setup of the problem, collection of data, their use, and conclusions. Students must present in writing a proposal acceptable to the graduate committee under whose direction the thesis is to be written. PREREQUISITE: permission of instructor.

† Grades of S, U, or IP will be given.

INDUSTRIAL AND SYSTEMS ENGINEERING

Room 310D Engineering Science Building
(901) 678-3285

MICHAEL RACER, PhD
Coordinator of Graduate Studies

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www.inse.memphis.edu

I. The Industrial and Systems Engineering program is designed to provide an interdisciplinary area of study emphasizing model building and optimization techniques. This program offers a Master of Science degree with emphasis areas individually designed.

II. MS Degree Program

A. Program Admission

The Herff College of Engineering has established uniform admissions criteria for all graduate programs. Exceptions to these requirements may be addressed by the Graduate Admissions and Retention Committee of the department and must be approved by the Dean.

B. Program Prerequisites

- a. A bachelor's degree from an ABET accredited four-year program or
- b. A bachelor's degree from a non-ABET accredited four-year program plus 18 hours of upper division mathematics and science courses.
- Three semesters of calculus, one semester of upper division statistics, and one semester of engineering economics or equivalent.

C. Program Requirements

- Non-thesis option:** 33 semester hours with a minimum of 21 hours in the Engineering College and a maximum of 9 hours in a collateral area as defined by the chairman.
- Thesis option:** 30 semester hours with a minimum of 18 hours in the Engineering College and a maximum of 6 hours in a collateral area as defined by the chairman, and 6 hours of thesis credit.
- INSE 7601, 7602, 7608, 7610, and 7641 required for both options.
- A faculty advisory committee will be appointed for each student entering the program. Students will meet with their committee within the first two weeks of their first semester. The advisory committee will define the student's program, including any necessary language or computer communication courses.

D. Retention Policy

All students enrolled in the Industrial and Systems Engineering Program are expected to attain high academic achievement in all courses taken. The criteria listed below will be used to determine retention status.

- Students having been unconditionally admitted to the graduate program who maintain a cumulative grade point average of 3.00 or higher will be considered to be in good standing.
- Students must maintain a cumulative grade point average of 3.00 in all course work at The University of Memphis, in all INSE course work at

The University of Memphis, and for all 7000 level course work at The University of Memphis at the end of each semester of enrollment. Any student not meeting these conditions will be placed on probation.

3. Students admitted with conditions must maintain a 3.00 average at the end of each semester until 9 hours of graduate credit are earned. A student having a cumulative grade point average less than 3.00 at the end of the period described will be dismissed. A student having a cumulative grade point average of 3.00 or above will then be subject to the retention criteria listed in 2 above.
4. Students admitted with program deficiencies must satisfy these deficiencies with a grade of 3.0 or better within his/her first semester of grade work or the student will be placed on probation.
5. A student will be permitted two (2) grades of 2.0 in graduate courses taken at The University of Memphis with no more than one grade of C in INSE courses. A student will be dismissed from the program at the end of the semester in which a third grade of 2.0 is earned or the second grade of 2.0 is earned in INSE courses.
6. A student who has been dropped from the program will be denied permission to enroll in INSE courses in semesters subsequent to dismissal from the department.

INDUSTRIAL AND SYSTEMS ENGINEERING (INSE)

7601. Experimental Analysis. (3). Order statistics, moment-generating-function techniques, point estimation, maximum likelihood estimators, and sampling theory. PREREQUISITE: Permission of instructor. Offered fall semester.

7602. Engineering Experimental Design I. (3). Hypothesis test, analysis of variance, simple and multiple linear regression; introduction to ANOVA and statistical packages. PREREQUISITE: INSE 7601. Offered spring semester.

7604. Engineering Experimental Design II. (3). Applications of statistical methods in noise reducing designs, factorial designs, and fractional factorial designs; BMPD and SPSS emphasized. PREREQUISITE: INSE 7602. Offered fall semester.

7608. Modeling. (3). Principles of problem formulation, verification, and validation; emphasis on recognizing and exploiting applicability of previous course work as it relates to real-world situations. PREREQUISITES: 12 hours in INSE courses. Offered fall semester.

7610. Operations Research I. (3). Deterministic models in Operations Research; linear, programming; duality, sensitivity analysis, transportation, and network models. Offered fall semester.

7616. Operations Research III. (3). Modeling and optimization of non-linear integer and dynamic programming problems; applications in production, scheduling, and routing. PREREQUISITE: INSE 7610. Offered spring semester.

7620. Network Algorithms. (3). Network and graph algorithms with applications in transportation and communication design; transportation problem, minimum cost flow problem, and tree algorithms. PREREQUISITE: Equivalent of INSE 7610 or permission of instructor. Offered spring semester.

7641. Operations Research II. (3). Stochastic models in Operations Research; Markov chains, queuing theory, inventory systems, and discrete simulation. PREREQUISITE: INSE 7601. Offered spring semester.

7644. Advanced Engineering Economics and Decision Theory. (3). Advanced engineering economy and decision-making concepts and techniques in analysis of engineering alternatives emphasizing decision making under risk and uncertainty. PREREQUISITES: INSE 7601 or permission of instructor. Offered spring semester.

7645. Forecasting Techniques. (3). Use of forecasting techniques such as moving averages, exponential smoothing, ARIMA, and Box-Jenkins models in engineering analysis of alternatives and decision making. Design project and report required. COREQUISITES: INSE 7601. Offered fall semester.

7647. Quality Assurance and Reliability. (3). Theory of reliability and quality control. The use of probability models. Data display and reduction, sampling statistics and their distributions; implementation of quality assurance in industrial production. PREREQUISITE: Permission of instructor. Offered fall semester.

7660. Systems Simulation. (3). Principles of stochastic simulation methods for input-output analysis of complex systems; use of

SIMSCRIPT simulation languages. PREREQUISITES: INSE 7601, 7602, and permission of instructor. Offered spring semester.

7685. Seminar. (1). Presentations by faculty, members of industry, and students; material presented is representative of state-of-the-art work in field; reports may be either based on own work, or readings of appropriate journal articles. Offered spring and fall semesters.

7900-10. Special Topics in Industrial and Systems Engineering. (1-3). Topics are varied and announced in *Schedule of Classes*. Offered spring and fall semesters.

7991. Research in Industrial Systems. (3). Independent investigation of a problem selected in consultation with instructor; report required. PREREQUISITE: Permission of instructor. Offered spring and fall semesters.

7992. Research in Industrial Systems II. (3). Independent investigation of problem selected with instructor; report required. PREREQUISITE: Permission of instructor. Offered spring and fall semesters.

†7996. Thesis. (1-6).

†Grades of S, U, or IP will be given.

MECHANICAL ENGINEERING

Room 312, Engineering Science Building
(901) 678-2173

JOHN I. HOCHSTEIN, PhD
Interim Chair

JAIDA MO, PhD
Coordinator of Graduate Studies

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MEMBERS

- MUHAMMAD F. ANWAR, *Assistant Professor*,
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Ph.D. (1984), The University of Akron [2004]
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Ph.D. (1976), University of Toledo [2005]
YOUNG JIN KIM, *Assistant Professor*,
PhD (2000), Clemson University [2006]
GLADIUS LEWIS, *Professor*,
Ph.D. (1976), University of Nottingham, England [2006]
HSIANG HSI LIN, *Professor*,
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Ph.D. (1996), Texas Tech University [2004]
TEONG TAN, *Associate Professor*,
Ph.D. (1984) Iowa State University [2004]
RICHARD C. WARDER, JR., *Professor & Dean, Herff College of Engineering*,
Ph.D. (1963), Northwestern University [2006]

ASSOCIATE MEMBER

- SAM B. THOMASON, *Associate Professor*,
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PhD (1991), Tsinghua University, China [2001]

CHU-HO LU,

Ph.D. (1989), Syracuse University [2001]

SANJIV SAMANT,

Ph.D. (1988), The University of Western Ontario [2002]

RICHARD SMITH,

Ph.D. (1997), The University of Memphis [2002]

I. The department of Mechanical Engineering offers a graduate program leading to the Master of Science degree with a major in Mechanical Engineering. Concentrations are available in design and manufacturing, energy systems, mechanical systems, and power systems.

II. MS Degree Program

A. Program Admission

The Herff College of Engineering has established uniform admission criteria which identify the pool of master's level applicants from which the department evaluates and recommends qualified applicants to be admitted.

B. Program Requirements

A more detailed description of the information listed below will be given by the Coordinator of Graduate Studies to students admitted into the Mechanical Engineering MS program.

1. **Thesis Option:** A minimum of 30 semester hours total with a minimum of 18 hours in 7000 level MECH courses consisting of 6 hours in MECH 7341 and 7342 as required core courses, and 6 hours in MECH 7996 for a thesis. A maximum of 9 hours in 6000 level MECH or collateral courses and a maximum of 3 hours in a 7000 level collateral course. Collateral courses must be in mathematics or physical science, or another engineering area, or a combination.
2. **Non-Thesis Option:** A minimum of 33 semester hours total with a minimum of 21 hours in 7000 level MECH courses, consisting of 6 hours in MECH 7341 and 7342 as required core courses, and 6 hours in MECH 7992 for an independent research project. A maximum of 9 hours in 6000 level MECH or collateral courses and a maximum of 3 hours in a 7000 level collateral course. Collateral courses must be in mathematics or physical science, or another engineering area, or a combination.
3. Transfer credit is limited to 6 credit hours. Credit previously earned at another university must be presented for evaluation not later than the end of the student's second semester of enrollment.
4. **Course Load Maximums:**
 - a. 15 credit hours per semester for full-time student
 - b. 9 credit hours per semester for full-time conditional student
 - c. 12 credit hours per semester for graduate assistants. There are a limited number of graduate assistantships available; contact the chair of Mechanical Engineering for applications.
5. Students selecting the thesis option will be required to complete an independent research project culminating in a masters thesis. Upon completion of the thesis, the student must successfully pass an oral examination to assess mastery of the thesis topic and to evaluate the student's knowledge in mechanical engineering.
6. Students selecting the non-thesis option will be required to pass both written and oral comprehensive examinations during the final semester of study. In addition, the student is required to complete a 6-hour independent research project (MECH 7992) culminating in both written and oral reports.
7. Students who wish to take mechanical engineering courses must have prior consultation and approval by the Coordinator of Graduate Studies or by an advisory committee in the Department of Mechanical Engineering.

C. Retention Policy

1. Students who have been admitted to the program on a conditional basis must satisfy all requirements of their admission by the end of the first semester of enrollment.
2. A student must maintain a GPA of 3.00 or higher throughout the program. A student will be permitted two grades of 2.00 in courses approved for the degree. A student will be dismissed at the end of the semester in which a third grade of 2.00 or lower is earned.

D. Graduation Requirements

1. A minimum of 70% of the total required hours must be 7000 level courses.
2. All coursework must be completed within 6 years.
3. No more than 7 hours of 2.00 can qualify for degree requirements.
4. A 3.00 average in combined graduate coursework.
5. Successful completion of comprehensive examination and thesis or non-thesis option requirement.
6. File "Application for Admission to Candidacy for Master's Degree" form and "Intent to Graduate" card by the deadline published in the Graduate School Catalog and Schedule of Classes. The deadline is also displayed on the department bulletin board.

III. PhD Degree Program

See the beginning of this College section for admission, retention, and graduation requirements. A more detailed description of the information will be given by the Coordinator of Graduate Studies to students admitted into the Mechanical Engineering concentration.

MECHANICAL ENGINEERING (MECH)

6305. Intermediate Fluid Mechanics. (3). Continuation of MECH 3331. Introduction to various topics in advanced fluid mechanics, including flow over immersed bodies; open channel hydraulics; compressible fluid flow; turbomachinery; measurements in fluid mechanics; and inviscid flow. **PREREQUISITE:** MECH 3331.

6309. Gas Dynamics (3). Concepts in compressible flow; emphasis on real and ideal gas dynamic effects and non-equilibrium flow; application of numerical methods. **PREREQUISITES:** MECH 3312, 3331.

6313. Heat Transfer II. (3). Principles of boiling, condensing, and radiation heat transfer; fundamentals of heat exchanger design. **PREREQUISITE:** MECH 4311.

6315. Heating, Ventilation, and Air Conditioning. (3). Psychometric analyses, heating and cooling loads of buildings, and analyses of air conditioning systems. **PREREQUISITE:** MECH 4311.

6324. Computer Methods in Design. (3). Application of computer-aided analysis software to the design of mechanical components and systems; introduction to fundamental concepts and principles of finite element methods; design problems and project assignments using finite element analysis package.

6325. Advanced Mechanics of Materials. (3). Biaxial stresses, torsion, unsymmetrical bending of beams, shear centers, contact stresses, failure theory, and other selected topics. **PREREQUISITE:** MECH 3322.

6326. Biomedical Systems Analysis-Mechanical. (3). Introduction to concepts used in analyzing living systems; simulation of body functions with mechanical and computer models; familiarization with the design of mechanical bioengineering devices such as heart valves, heart-lung machines, renal analysis machines. **PREREQUISITES:** MECH 2332, 3322.

6330. Introduction to Composite Materials. (3). Introduction to fiber reinforced composite materials; mechanical behavior, strength, design methodology, and implementation of computer aided design. **PREREQUISITES:** MECH 3320, 3322.

6331. Turbomachinery. (3). Basic principles of fluid mechanics and thermodynamics with application to rotating devices; ideal and actual operating characteristics of pumps, fans, turbines, and compressors; constraints on design of real systems. **PREREQUISITE:** MECH 3331.

6333. Aerospace Propulsion Systems. (3). Fundamentals of air-breathing and rocket propulsion devices; principles of combustion thermodynamics, gas turbine operation, solid and liquid propellants, performance evaluation, and atmospheric and space mission propulsion requirements. **PREREQUISITE:** MECH 4331.

6337. Internal Combustion Engines. (3). Principles of Otto, Diesel, and Brayton cycle engines; effects of various fuels and fuel delivery systems, air induction systems, ignition systems, and pollution control techniques on engine performance. **PREREQUISITES:** MECH 3312, 3331.

6340. Manufacturing Processes. (3). Fundamentals of mechanical behavior of materials, manufacturing properties of materials; casting, bulk deformation, sheetmetal forming; material removal processes; processing of polymers, ceramics, and glasses composite materials; powder metallurgy; fastening and joining processes; nontraditional manufacturing processes; economics of integrated design and manufacturing processes. **PREREQUISITES:** MECH 3320, 3322.

6345. Design of Mechanisms. (3). Graphical and analytical mechanism synthesis techniques for path generation, function generation, rigid body guidance, and optimization of force transmission characteristics. **PREREQUISITES:** MECH 3321, 4322.

6346. Advanced Mechanical Controls. (3). Advanced modeling of mechanical control systems; review of digital and optimal control systems, and simulation of control systems. **PREREQUISITE:** MECH 4344.

6350. Principles of Biomechanics. (4). (7308). Analyses of bone and joint structure of the body related to basic mechanical equations and properties; mathematical modeling of bone structure, mechanical properties, static loading, dynamic loading, fatigue, wear, corrosion. **PREREQUISITES:** MECH 3320, 3322.

6371. Mechanical Vibrations. (3). Kinematics of harmonic and non-harmonic vibrations; systems of one and several degrees of freedom,

free and forced vibrations; self-excited vibration. PREREQUISITES: MECH 3321, 3341.

7302-8302. Theory of Continuous Media. (3). (Same as BIOM 7-8103). Analysis of stress and deformation at a point; derivation of the fundamental equations in Cartesian tensor notation by application of the basic laws of conservation of mass, energy, and momentum in mechanics and thermodynamics. PREREQUISITES: MECH 3322, 7341-8341.

7303-8303. Advanced Dynamics. (3). Formulation of three-dimensional nonlinear dynamical equations of motion for particles and rigid bodies; modeling of dynamic systems; numerical integration. PREREQUISITES: MECH 3321, 7341-8341.

7304-8304. Nonlinear Dynamics and Chaos. (3). Dynamics of differential equations; geometric concepts in Hamiltonian dynamics; classical perturbation theory; chaos in Hamiltonian systems and area-preserving mappings.

7305-8305. Inviscid Flow Theory. (3). General equations of fluid mechanics; equations of two-dimensional inviscid flow; stream function and velocity potential definitions; irrotational flow; Laplace's equation in various flow fields and geometries; combined flows and superposition. PREREQUISITES: MECH 3312, 3331, 7341-8341.

7306-8306. Viscous Flow. (3). Advanced introduction to physical principles governing viscous fluid flow; fundamental equations developed from first principles and topic include: flow kinematics, derivation of Navier-Stokes equations, exact solutions of N-S equations for internal and external flows, dimensional analysis, creeping flows, Vorticity dynamics, flow control.

7307-8307. Advanced Viscous Flow. (3). Advanced topics in viscous flow including incompressible and compressible boundary layer theory, free shear flows, stability analysis, turbulent flow modeling, approximate N-S solutions, non-Newtonian flows.

7323-8323. Conduction Heat Transfer. (3). Fundamentals of steady-state and transient heat conduction; applications of Fourier series, Laplace transforms, finite differences, and finite elements to conduction problems. PREREQUISITES: MECH 4311, 7341-8341.

7324-8324. Radiation Heat Transfer. (3). Fundamentals of radiation properties of surfaces and radiation exchange between surfaces; black, gray, and non-gray surfaces; integral and numerical techniques employed in radiation problems. PREREQUISITES: MECH 4311, 7341-8341.

7325-8325. Convection Heat Transfer. (3). Fundamentals of free and forced convection heat transfer using differential and integral formulation of laminar and turbulent boundary layers for flow over internal and external surfaces; influence of temperature-dependent properties; convective heat transfer at high velocities. PREREQUISITES: MECH 4311, 7341-8341.

7341-8341. Engineering Analysis I. (3). Analysis of engineering systems using closed form solutions; application of Fourier series and transforms, Laplace transforms, power series methods, vector calculus, ordinary and partial differential equations. PREREQUISITE: MATH 3391.

7342-8342. Engineering Analysis II. (3). Continuation of MECH 7341. Matrices and determinants, complex analysis, conformal mapping techniques, applications to thermal/fluid and applied mechanics problems, engineering applications of probability and statistics.

7355-8355. Engineering Optimization. (3). Practical aspects of optimization methodology with emphasis on techniques and procedures relevant to engineering applications in design, operations, and analysis; engineering case studies. PREREQUISITES: MECH 4322, 7342-8342.

7361-8361. Mechanical Behavior of Materials. (3). Performance of materials at elevated temperatures; statistical aspect of brittle fracture; advanced treatment of fatigue failure; linear elastic fracture mechanics; friction and wear; ductile failure; strengthening mechanisms; embrittlement modes; case studies in materials selection. PREREQUISITE: MECH 3320.

7363-8363. Fracture Mechanics. (3). Linear elastic analysis; elastic-plastic analysis, dynamic and time-dependent fracture; microstructural aspects of fracture; environment-assisted cracking; fatigue crack growth and propagation; analysis of engineering failures; case studies. PREREQUISITES: MECH 3320, 3322, 3323.

7365-8365. Corrosion. (3). Fundamental causes and mechanisms; corrosion control; study of specific corrosion problems. PREREQUISITE: MECH 3320.

7371-8371. Advanced Mechanical Vibrations. (3). Modeling of linear and nonlinear vibrational systems; control, measurement, and stability of vibrational systems. PREREQUISITES: MECH 6371, 7342-8342.

7378-8378. Introduction to Computational Fluid Dynamics. (3). Introduction to computational fluid mechanics and heat transfer, finite difference and finite volume methods, stability consideration, basics of numerical computation and analysis of model equations and fluid dynamics equation.

7379-8379. Advanced Computational Fluid Dynamics. (3). Advanced introduction to state-of-the-art computational fluid dynamics; advanced grid generation, numerical schemes, and numerical boundary conditions; numerical computation of compressible inviscid and viscous flows, turbulence modeling, skill of post data process.

7381-8381. Finite Element Methods. (3). General principles and modeling of engineering systems using the finite element method; applications in fracture mechanics, hydrodynamics, and thermal conduction. PREREQUISITES: MECH 3341, 7341-8341.

†7900. Seminar. (1). Graduate students must attend seminars regularly organized by the department.

7901-7909-8901-8909. Special Topics in Mechanical Engineering. (1-3). Topics are varied and announced in the *Schedule of Classes*.

7990-8990. Engineering Practicum. (3). Studies of related practical mechanical engineering problems as an integral part of the established curriculum under the instruction and supervision of a faculty member. Written and oral reports are mandatory.

†7991-8991. Research Proposal. (1-3). Exhaustive literature search and presentation of both written and oral proposals on engineering topics under supervision of instructor.

†7992. Research Project. (1-6). Independent research investigation of engineering problem under supervision of instructor for students in non-thesis option; both written and oral reports required.

†7996. Thesis. (1-6).

†9000. Dissertation. (1-12).

† Grades of S, U, or IP will be given.



The School of Audiology and Speech-Language Pathology

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Associate Dean

MAURICE I. MENDEL, PhD
Dean

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Individual program requirements described in *The University of Memphis Graduate Bulletin, 2001-2003*, are subject to change. Please consult your department or the Graduate School web page for changes that may occur before publication of the next issue of this *Bulletin*.

- I. The School of Audiology and Speech-Language Pathology offers graduate programs leading to the MA and PhD degrees with a major in Audiology and Speech Pathology and concentrations in (1) Audiology or (2) Speech-Language Pathology. In addition, the School offers a graduate program leading to the AuD degree with a major in Audiology. Contact the School regarding specific requirements for the AuD degree.

The School holds Council on Academic Accreditation and Professional Services Board accreditation from the American Speech-Language-Hearing Association.

Students may not enroll for courses as graduate non-degree except by permission of the instructor and with approval of the Director of Graduate Studies.

II. MA Degree Program

A. Program Admission

1. The admissions committee will review all applications. Students should have a GPA of 3.00 (on a 4 point system). GRE scores are required (General Test). Students are admitted in the fall semester only. Application packets and instructions are available by request in the fall semester for the next admission class. Although applications may be submitted at any time, likelihood of acceptance and financial assistance for the fall semester is greater for applications received prior to February 1.
2. Students are expected to be proficient in understanding and use of English.

B. Prerequisite Requirements

1. To be considered for admission, all applicants must have completed or be in the process of completing a baccalaureate degree from an accredited institution of higher learning. Previous academic preparation in audiology/speech-language pathology is not a requirement for admission.
2. Assumed Coursework (12 credit hours); may be taken at The University of Memphis.
 - a. Biological/Physical Science (3)
 - b. Mathematics (3)
 - c. Behavioral/Social Science (6)

C. General Program Requirements

1. Students must complete a minimum of 50 credit hours and meet the academic and practicum requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association.

Most students complete between 50-60 credit hours in their graduate program. Additional coursework will be required for those students without undergraduate preparation in audiology/speech-language pathology.

2. Students must complete a minimum of nine semester hours of clinical practicum with a grade of B or above and must obtain a B or above in their last two semesters. Maximum of 8 credit hours of A USP 7104/7208 may be counted toward 50-hour requirement.
3. A thesis or non-thesis option is available. Students choosing the non-thesis option must take A USP 7990 (Special Project). All students must complete written comprehensive examinations.

D. Core Requirements (20 hours)

- A USP 7000 Speech Science or A USP 7001 Hearing Science (3)
- A USP 7007 Communicative Interaction (3)
- A USP 7104 Clinical Practicum or A USP 7208 Clinical Practicum (8)
- A USP 7500 Evaluating Research in Communication Disorders (3)
- A USP 7990 Special Project or A USP 7996 Thesis (3)

E. Specific Requirements

1. Audiology Concentration

- a. Assumed Background Coursework (12 hours); may be taken at The University of Memphis.
 - 1) Basic Communication Processes: Normal Speech/Language development (3); Other (3).
 - 2) Speech-Language Pathology: Speech Disorders (3); Language Disorders (3).
- b. Audiology Course Requirements (30 hours)
 - 1) Basic Science Coursework (3 hours): A USP 7004 Anatomy and Physiology of the Hearing Mechanism
 - 2) Major Area Coursework (27 hours):
 - A USP 7012 Measurement Techniques
 - A USP 7101 Audiological Concepts
 - A USP 7103 Differential Audiology I
 - A USP 7105 Differential Audiology II
 - A USP 7113 Rehabilitative Audiology I
 - A USP 7114 Introduction to Hearing Aids
 - A USP 7115 Pediatric Audiology
 - A USP 7116 Hearing Aid Selection
 - A USP 7127 Rehabilitative Audiology II
 - 3) Proficiency in Manual Communication Or A USP 7123 Manual English

2. Speech-Language Pathology Concentration

- a. Assumed Background Coursework (12 hours); may be taken at The University of Memphis.
 - 1) Anatomy and Physiology of the Speech Mechanism (3)
 - 2) Basic Communication Processes or Speech/Language Disorders (3)
 - 3) Audiology: Hearing Disorders/Evaluation (3); Habilitation/Rehabilitation (3);
- b. Speech-Language Pathology Course Requirements (Specific - 6 hours)
 - A USP 7006 Language & Speech Development
 - A USP 7200 Introduction to Clinical Practicum
 - A USP 7501 Phonetic Transcription
- c. Speech-Language Pathology Course Requirements (General - 24 hours)
 - 1) Basic Communication Processes (minimum 3 hours)
 - A USP 7002 Seminar in Communication Sciences
 - A USP 7003 Anatomy and Physiology of the Speech Mechanism
 - A USP 7008 Acoustic and Physiologic Phonetics
 - A USP 7010 Neurological Bases of Communication
 - A USP 7011 Psycholinguistics
 - A USP 7016 Socio-cultural Bases of Communication
 - 2) Speech Disorders (6 hours minimum)
 - A USP 7201 Cleft Palate and Craniofacial Disorders
 - A USP 7202 Motor Speech Disorders in Children
 - A USP 7203 Voice Disorders
 - A USP 7204 Phonological Disorders
 - A USP 7205 Stuttering
 - A USP 7206 Neuromotor Speech Disorders in Adults
 - A USP 7209 Dysphagia and Related Disorders
 - A USP 7210 Seminar in Speech Pathology
 - A USP 7309 Speech Rehabilitation for Head/Neck Pathologies
 - 3) Language Disorders (6 hours minimum)
 - A USP 7300 Language Disorders in Children
 - A USP 7302 Language Disorders in Adults I
 - A USP 7303 Language Disorders in Adults II
 - A USP 7304 Seminar in Language Disorders
 - A USP 7305 Language Learning Disabilities
 - A USP 7306 Management Issues in Adult Neurogenic Disorders

III. Teacher Certification Requirements

School degree requirements meet all requirements for teacher certification.

IV. PhD Program

A. Program Admission

All applications will be reviewed by the admissions committee. Students should have a GPA of 3.5 (on a 4 point scale). GRE scores are required (General Test). The likelihood of acceptance and financial assistance is greater for applications received by March 1.

Applicants are asked to submit recommendations from at least three individuals familiar with the applicant's academic background and aptitude for doctoral work in Audiology/Speech-Language Pathology. The letters should specify in detail the applicant's capabilities for doctoral study. Applicants also need to submit a resume/vita describing all educational and work experience and a letter describing research interests and professional goals. In addition, applicants must have an interview with U of M faculty in the student's major area of concentration.

Most applicants will have a Master's degree upon admission but this is not a requirement.

B. Graduation Requirements

For students entering with a bachelor's degree, a minimum of 81 graduate hours, not including dissertation, is required for the PhD degree in Audiology and Speech-Language Pathology. For students who have completed a master's degree in Audiology or Speech-Language Pathology, a minimum of 57 graduate hours, not including dissertation, will be required for the PhD degree. A minimum of 9 hours is required for the dissertation. Additional coursework, beyond the minimum, may be required at the discretion of the advising committee. It should be noted that most students in this program take between 60 and 70 graduate credits beyond the master's degree. Course credit for clinical practicum may not be counted toward the doctoral degree.

1. **Areas of Concentration:** Two areas of concentration are offered, (1) Audiology and (2) Speech-Language Pathology. A minimum of 24 credit hours must be taken in the student's area of concentration and at least 21 of these hours must be within the school of Audiology and Speech-Language Pathology.
2. **Core Requirements:** All PhD students are required to complete the following:
 - a. A USP 8008—Acoustic and Physiological Phonetics
 - b. A USP 8021—Professional Preparation for Scientists (minimum 3 credit hours)
 - c. A USP 8010—Neurological Bases of Communication
 - d. Research Tool—15 credit hours, of which 9 hours must be in statistics and/or research design. Other courses may include those in instrumentation, grant preparation, and computer technology.
3. **Collateral Area:** A minimum of 9 semester hours will be required from a collateral area. A collateral area is defined as a combination of courses based on substantive commonality. This collateral coursework must be taken outside the School of Audiology and Speech-Language Pathology.
4. **Pre-Candidacy Research Project:** All PhD students will be required to satisfactorily complete a data based research project prior to candidacy. Students will submit a written version of the completed project to the project director and orally present the completed project to a departmental colloquium. In most cases, the student's academic advisor will serve as project director.
5. **Additional Requirements:**
 - a. In addition to credit hour requirements, students will have a 12-hour per week scholarly experience assignment at least until approval of candidacy in the doctoral program. Students on assistantship may be assigned additional hours. All PhD students are expected to be active in research collaboratively with members of the school faculty each semester they are enrolled.
 - b. Students may be permitted to complete the requirements for clinical certification with the approval of their planning committee.
 - c. Continuation in the program is contingent upon a satisfactory annual review.

C. General Program Requirements

1. **Advisors:** Upon admission each student will be assigned an adviser by the Director of Graduate Studies in consultation with the student. This adviser will serve as the chair of the student's planning committee. The adviser shall be a member of the graduate faculty of The University of Memphis.
2. **Planning Committee:** The planning committee's charge is to evaluate the student's academic needs and assist in the planning of the student's academic program. Students who have completed a master's degree will be assessed for currency of knowledge in their concentration to assist in the planning of their academic program. This requirement will not apply to those students who have completed a master's degree within the School of Audiology and Speech-Language Pathology. The academic program will be tailored to accommodate the individual student's academic interests, background, and professional goals. Within the concentration area, each student will identify an area of special focus. The committee will recommend to the Graduate School those courses, if any, to be transferred toward the PhD, provided that the credit meets general university requirements. The committee, all of whom must be members of the graduate faculty, shall number no less than three, at least two of whom shall be from the student's area of concentration. The student, in conjunction with the committee, will develop a final academic plan to be in written form and filed in the dean's office. This plan is to be signed by each member of the committee and the doctoral student. The plan must be filed no later than the

middle of the second semester. The student or a planning committee member may propose changes after the plan has been filed. However, any resulting change in the student's plan will require written approval of the committee and the doctoral student.

D. Comprehensive Examination Committee

The comprehensive examination committee will consist of members selected by the student in conjunction with the advisor. The committee will be made up of at least three members from the School of Audiology and Speech-Language Pathology and one from the collateral area.

E. Comprehensive Examination

The comprehensive examination will consist of a written and oral examination. The written examination will typically entail 24 hours of writing within a 10-day period, though up to 6 hours may be completed in an alternative manner (e.g., practical laboratory examination or scholarly paper). The purpose of the comprehensive examination is to determine adequate knowledge of the field (AUD or SLP), research tools, the collateral area, and mastery of the area of special focus. Examiners will consider the student's ability to synthesize, integrate and critique information and ideas. Although there will usually be a relationship between doctoral coursework and the comprehensive examination, the examination is not restricted to course content. The oral examination date shall be within three weeks of the conclusion of the written examination regardless of the student's performance on the written examination. The oral examination is a supplement to the written examination and is intended to ensure that the goals of the comprehensive examination have been met. All of the faculty committee members from within the School and at least one from outside the School must be present at the oral examination.

The comprehensive examination may be taken upon completion of the doctoral student's academic plan or within the last semester of completing his or her academic requirements. This examination will be administered any time within the specified semester subject to the discretion of the comprehensive committee. The committee shall determine the student's status relative to the comprehensive examination after the oral examination. No more than one dissenting vote may be cast for a student to pass. The committee has the authority to specify further stipulations aimed at remedying any deficiencies reflected in the student's comprehensive examination including retaking the entire written and oral examination, enrolling for additional coursework, and preparing one or more scholarly papers. The committee chair shall file in the dean's office a decision in writing concerning the student's comprehensive examination within two weeks after the oral examination.

F. Candidacy

After completion of all academic requirements and successful completion of the comprehensive examination, a doctoral student may apply for candidacy.

G. Dissertation Committee

The dissertation committee will consist of a minimum of four faculty members selected by the student in consultation with the dissertation advisor. At least half of the members must be from the School and at least one member must be from a department outside the School of Audiology and Speech-Language Pathology. The chairperson of the dissertation committee must be from the School and must be a full member of the graduate faculty.

H. Dissertation

The student will develop a prospectus in conjunction with the dissertation committee chairman. The prospectus will be reviewed for approval by the committee. After approval the student will conduct the work set forth in the prospectus. The completed dissertation will be defended by the student. The oral defense will be open to the University community, with voting on the acceptability of the defense restricted to dissertation committee members. All members of the committee must be present at the dissertation defense. An affirmative decision will be based on the unanimous decision of the examining committee. After successful defense, any required revision, retyping, and resubmission of the dissertation to the committee chair must be completed prior to the awarding of the degree.

AUDIOLOGY AND SPEECH PATHOLOGY (AUSP)

BASIC SCIENCE AREA

7000-8000. Speech Science. (3). Contemporary survey of phonetic sciences; detailed discussion of neurological, physiological, acoustic, and perceptual processes involved in the production, transmission, and intelligibility of the speech signal.

7001-8001. Hearing Science. (3). Basic acoustics, psychoacoustics, and physiological acoustics.

7002-8002. Seminar in Communication Sciences. (3). Advanced study of selected aspects of basic sciences related to hearing, speech, or language; with different content, may be repeated for up to 6 hours credit at 7000 level or up to 12 hours at 8000 level. **PREREQUISITE:** Permission of instructor.

7003-8003. Anatomy and Physiology of the Speech Mechanism. (3). Structure and function of bodily organs related to the processes of speech production.

7004-8004. Anatomy and Physiology of the Hearing Mechanism. (3). Structure and function of outer, middle, inner ear, and auditory neural pathways; formation of auditory system in context of general prenatal development.

7006-8006. Language and Speech Development. (3). Normal acquisition and maintenance of speech and language, theoretical formulations about language and speech behavior, and approaches to its study. Students observe and describe the language of children of various ages whose development is within normal range.

7007-8007. Communicative Interaction. (3). Concepts and processes fundamental to communicative interaction; emphasis on application of such concepts and processes to the student's own communicative interactions.

7008-8008. Acoustic and Physiological Phonetics. (3). Survey of experimental phonetics: acoustic theory and techniques of acoustic analysis; aerodynamics, kinematics, and physiology of speech production; speech synthesis and perception. **PREREQUISITE:** Permission of instructor.

7010-8010. Neurological Bases of Communication. (3). Review of the neuroanatomy of the central and peripheral nervous systems and the physiology of nerves and muscles. Attention on cortical and subcortical structures and on neuropsychological processes that are attributed to speech and/or language functions.

7011-8011. Psycholinguistics. (3). Historical and recent trends in linguistics; relationship between brain, language, and cognition; knowledge and processes involved in speaking and listening; topics include nature of mental representations and organization of knowledge; speech perception; lexical, sentence, and discourse processing; speech and language production.

7012-8012. Measurement Techniques. (3). Principles and techniques involved in measurement procedures frequently encountered in the practice of Audiology; major focus will be on the topics of calibration, measurement of environmental noise, and measurement of electroacoustic characteristics of hearing aids. Laboratory experience is provided. **PREREQUISITE:** AUSP 7001 and 7101 or permission of instructor.

7016-8016. Socio-Cultural Bases of Communication. (3). Influences of socio-cultural factors such as age, religion, ethnicity, socioeconomic status, and geographic region, on communication; emphasis on cross-cultural communication in educational and health-care settings.

8015. Instrumentation. (3). The measurement and calibration of instrumentation typically used in speech and hearing science along with a discussion of pertinent electroacoustic principles.

8017. Microcomputers in Speech and Hearing Science. (3). Number systems; programming concepts; interfacing components; analog-digital and digital-analog conversions; digital processing of speech and other signals; and computer hardware systems and peripherals with particular application in speech and hearing research. For doctoral and upper level master's students.

8019. Anatomy and Physiology of the Auditory System I. (3). Basic anatomy and physiology of the outer ear, middle ear, and cochlea; embryologic origins and development of structures related to body systems.

8020. Anatomy and Physiology of the Auditory System II. (3). Basic anatomy and physiology of the vestibular system, nervous system, visual and proprioceptive systems as they relate to hearing and balance. **PREREQUISITE:** AUSP 8004 or permission of instructor.

8021. Professional Preparation for Scientists. (1). Preparation of early PhD students for the role of scientist in the academic and clinical community; rotating themes include ethics, the publication and review process, teaching strategies and techniques, mentoring, grant preparation, and presentation of research. May be repeated for a maximum of 6 credit hours.

AUDIOLOGY

7101-8101. Audiological Concepts. (3). Basic audiological concepts and their applicability to clinical procedures; topics include pure-tone air and bone conduction procedures, clinical masking, speech threshold and recognition testing, acoustic immittance, and acoustic reflex testing; laboratory exercises included.

7103-8103. Differential Audiology I. (3). Behavioral, acoustic, and electrophysiologic tests to identify site of lesion for given hearing loss; test strengths and weaknesses discussed along with concept of forming test battery for hearing assessment. PREREQUISITE: A USP 7004, 7101, or permission of instructor. COREQUISITE: A USP 7104.

7104-8104. Clinical Experience in Audiology. (3). Supervised clinical experience in the evaluation and/or management of clients with hearing impairments; designed to meet student's individual needs. May be repeated as often as desired.

7105-8105. Differential Audiology II. (3). Otoacoustic emissions and electronystagmography (ENG) technique and interpretation; cerumen management and review of otologic diseases and the aging auditory system. PREREQUISITE: A USP 7103 or permission of instructor; COREQUISITE: A USP 7104.

7112-8112. Seminar in Audiology. (3). Detailed study of selected topics in audiology. With different content, may be repeated for up to 6 hours at the 7000 level or 12 hours at the 8000 level. PREREQUISITE: Permission.

7113-8113. Rehabilitative Audiology I. (3). Roles of auditory, visual, and bisensory cues in communication: effects of hearing impairment on speech and language development; psychology of deafness and deaf culture; prosthetic devices. PREREQUISITE: A USP 7101 or permission of instructor.

7114-8114. Introduction to Hearing Aids. (3). Performance and measurement of wearable hearing aids; characteristics of hearing aids, standard and nonstandard hearing aid performance measurements, earmold acoustics, laboratory exercises. PREREQUISITE: A USP 7101 or permission of instructor.

7115-8115. Pediatric Audiology. (3). Audiologic procedures in pediatric assessment; special test techniques for hospital and school settings and central auditory processing; hearing loss due to birth defects. PREREQUISITE: A USP 7103 or permission of instructor.

7116-8116. Hearing Aid Selection. (3). Traditional and contemporary methods of hearing aid selection and evaluation; behavioral and objective procedures for children and adults. Laboratory exercises required. PREREQUISITE: A USP 7114 or permission of instructor.

7117-8117. Individual Study in Audiology for Speech Pathologists. (3). Directed topics include physics of sound, hearing loss, basic audiometric testing and hearing conservation.

7122-8122. Aural Rehabilitation. (3). Introduction to rehabilitative procedures for hearing-impaired children and adults; topics include minimal hearing loss, auditory perception of speech, amplification, speech and language behaviors, psychosocial problems, educational deficits and management; (re)habilitation programs for children and adults, and cochlear implants. Primarily for non-audiology majors. PREREQUISITE: A USP 7101 or permission of instructor.

7123. Manual English. (1). Acquisition of basic vocabulary and understanding of rules of Signed English; sign continuum; situational usage of both American Sign Language and Manual English.

7127-8127. Rehabilitative Audiology II. (3). Study of auditory disability and handicap; in-depth interview technique and self-assessment instruments to assess communicative function and behavioral and psychosocial adjustment to hearing impairment; establishment and evaluation of rehabilitative programs; group and individual considerations and counseling for hearing impaired and family members. PREREQUISITE: A USP 7101, 7104, or permission of instructor.

7700. Individual Readings in Audiology. (1-3). Directed independent study in literature in an area of audiology. May be repeated as often as desired.

7990. Special Projects. (1-3). Individual needs of students who wish to explore an area with faculty guidance. Students may pursue a pilot study. May be taken twice. PREREQUISITE: Permission of individual faculty members to be involved.

†7996. Thesis. (1-3). Academic credit for thesis may be taken for a maximum of 6 hours and a minimum of 3 hours degree credit. Only 3 credits may be applied toward degree requirements for the master's degree.

8100. Individual Readings in Audiology. (1-6). Directed independent study of literature in an area of audiology. May be repeated for a maximum of 6 credit hours.

8121. Individual Projects in Audiology. (1-6). Students pursue individual research projects under the direction of a member of the graduate faculty in audiology. May be repeated for a maximum of 6 credit hours.

8124. Clinical Supervision in Audiology. (1-3). Processes involved in supervision of student clinicians in diagnostic audiology and/or aural rehabilitation. Experience in supervision of MA level student clinicians is provided.

8125. Clinical Internship in Audiology. (6). Minimum of 270 clock hours of supervised experience in clinical facility encompassing administrative and patient management aspects of audiology. Written report required. PREREQUISITE: Certificate of clinical competence in Audiology; 48 hours toward the degree.

†9000. Dissertation. (1-6). Academic credit for dissertation may be taken for a maximum of 12 hours and a minimum of 1 hour credit. Only 9 credits may be applied toward degree requirements for the PhD degree.

SPEECH AND LANGUAGE PATHOLOGY

7200. Introduction to Clinical Practice in Speech-Language Pathology. (2). Introduction to clinical practicum in speech and language disorders. For students without prior practical graduate experience in communication disorders. Normally taken concurrently with A USP 7501.

7201-8201. Cleft Palate and Craniofacial Disorders. (3). Cleft palate speech with emphasis on articulatory, resonance, and phonatory aspects as well as medical and rehabilitative and rehabilitative principles. PREREQUISITE: A USP 7003 and 7200 or permission of instructor.

7202-8202. Motor Speech Disorders in Children. (3). Speech deficits attributable to developmental neuromuscular disorder; etiologies and classifications of cerebral palsy, hormonal disturbances, myopathologies, and various genetic disorders; review of contemporary approaches to diagnosis and management of developmental dysarthria and apraxia; special problems associated with treating profoundly- and multiply-handicapped child.

7203-8203. Voice Disorders. (3). In depth review of voice disorders by patterns of deviation, etiology, and techniques of intervention. Opportunity for original papers and/or projects.

7204-8204. Phonological Disorders. (3). Current research in phonology, including assessment, prediction, and remediation procedures.

7205-8205. Stuttering. (3). Review, evaluation, and synthesis of information regarding the definition of stuttering, theories of etiology, symptomatology, therapy approaches, and methods of research.

7206-8206. Neuromotor Speech Disorders in Adults. (3). Review of neuromotor systems subserving speech production and nature of neuromotor systems pathologies; diagnostic definitions and taxonomies associated with dysarthria and apraxia of speech, as well as applications of instrumental methods to clinical description of motor speech disorders; differential diagnosis, assessment, and interdisciplinary management of adults with acquired neuromotor disturbances affecting speech.

7207-8207. Clinical Instrumentation. (3). Principles and procedures for measurement of speech and voice function and dysfunction; standardization, validity, and reliability of instrumental procedures; hands-on experience with acquisition and interpretation of acoustic and physiologic data for speech pathologies.

7208-8208. Clinical Experience in Speech and Language Disorders. (3). Supervised clinical practice with clients. Designed to meet student's individual needs. May be repeated as often as desired.

7209-8209. Dysphagia and Related Disorders. (3). Anatomy and physiology of normal deglutition; nature and characteristics of swallowing disorders; methods of evaluation and management of dysphagia in adults and children; and consideration of medical conditions such as aspiration pneumonia, tracheostomy, and other complicating factors associated with dysphagia.

7210-8210. Seminar in Speech Pathology. (3). Selected areas of speech or language disorders. With different content may be repeated for up to 6 hours at the 7000 level or for up to 12 hours at the 8000 level.

7211. Clinical Experience for Public School Personnel. (1-2). Supervised clinical experience designed to meet the needs of practicing

public school personnel. **PREREQUISITES:** Permission of the Coordinator of Graduate Studies and completion of one semester of AUSP 7208.

7300-8300. Language Disorders in Children. (3). Perceptual, social, and cognitive correlates of language disorders associated with specific language impairment, phonological disorders, mental retardation, autism, and hearing impairment; assessment, diagnosis, and treatment of language disorders in young children (0-6 years).

7302-8302. Language Disorders in Adults I. (3). Communicative and cognitive deficits associated with focal neurological disease; differential diagnosis, assessment, and management of adults with aphasia and right hemisphere communication disorders.

7303-8303. Language Disorders in Adults II. (3). Communicative and cognitive deficits associated with nonfocal neurological disease; differential diagnosis, assessment, and management of individuals with traumatic brain injury, dementia, and other disorders.

7304-8304. Seminar in Language Disorders. (3). Detailed study of selected topics in language disorders in children and adults. With different content, may be repeated for up to 6 hours at the 7000 level or 12 hours at the 8000 level. **PREREQUISITE:** Permission of instructor.

7305-8305. Language Learning Disabilities. (3). Assessment and treatment of spoken and written language disorders in school-age children and adolescents with special emphasis on the collaborative role of the speech-language pathologist in school-based settings; attentional and social deficits associated with language-learning disabilities.

7307-8307. Management Issues in Adult Neurogenic Disorders. (3). Review of specific management approaches to adult neurogenic patients in variety of healthcare settings; professional issues relating to efficacy of treatment, third party reimbursement, and roles and responsibilities of other health care professionals. **PREREQUISITE:** AUSP 7302 and 7303 or permission of instructor.

7308-8308. Augmentative Communication (3). Comprehensive overview of theoretical and practical issues related to use of augmentative and alternative communication (AAC) systems; assessment and intervention strategies for children and adults in need of AAC.

7309-8309. Speech Rehabilitation for Head/Neck Pathologies. (3). Etiology, disordered anatomy, and physiology resulting from cancer of head and neck; ways in which cancer, surgery, and other medical

treatments affect speech and voice functioning and swallowing; diagnostic and treatment approaches.

7500. Evaluating Research in Communication Disorders. (3). (7005). Introduction to research applicable to speech pathology and audiology and theories of measurement, including statistical and behavioral designs, reliability and judgements, and replicability.

7501. Phonetic Transcription. (1). Broad and narrow transcription techniques and opportunities for transcription practice with normal and disordered populations.

7502-8502. Administrative Issues in Professional Practice. (3). Consideration of legal, ethical, financial, and personnel management issues associated with administration of clinical programs in Speech and Hearing; special emphasis given to private practice setting. Students required to complete project.

7800. Individual Readings in Speech Pathology. (1-3). Directed independent study of literature in an area of speech pathology. May be repeated as often as desired.

7990. Special Projects. (1-3). Students study a specific area under faculty guidance. May be taken twice. **PREREQUISITE:** Permission of individual faculty members to be involved.

†7996. Thesis. (1-3). Academic credit for thesis may be taken for a maximum of 6 hours and a minimum of 3 hours credit. Only 3 hours of credit may be applied toward degree requirements for the master's degree.

8200. Individual Readings in Speech Pathology. (1-6). Directed independent study of literature in an area of speech pathology. May be repeated as often as desired.

8221. Individual Projects in Speech Pathology. (1-6). Students pursue individual research projects under the direction of a member of the graduate faculty in speech pathology. May be repeated as often as desired.

8228. Clinical Supervision in Speech Language Pathology. (1). Processes involved in supervision of study clinicians in speech and language assessment and therapy; experiences in supervision of MA level student clinicians provided.

†9000 Dissertation. (1-12). Academic credit for dissertation may be taken for a maximum of 12 hours and a minimum of 1 hours credit. Only 9 hours may be applied toward degree requirements for the PhD degree.

†Grades of S, U, or IP will be given.

UNIVERSITY COLLEGE

Room G1, Johnson Hall
(901) 678-2716

SUSANNE B. DARNELL, PhD
Interim Dean

GRAVES E. ENCK, PhD
Coordinator, MALS Program

E-mail: rjmaxwell@memphis.edu
www.people.memphis.edu/~univcol/mals.html

Individual program requirements described in *The University of Memphis Graduate Bulletin*, 2001-2003, are subject to change. Please consult your department or the Graduate School web page for changes that may occur before publication of the next issue of this *Bulletin*.

I. The University College offers the Master of Arts in Liberal Studies (MALS) with a major in interdisciplinary studies.

II. MALS Degree Program

The MALS is interdisciplinary in nature, permitting students to elect courses from departments that offer the Master of Arts degree and, from the professional colleges, courses that are liberal in content.

A. Program Admission and Prerequisites

Applicants to the program are evaluated as they apply and may be admitted for the fall or spring semesters or for the summer semester. All applicants must meet the following admission requirements:

1. Admission to the Graduate School
2. Completion of MALS admission form
3. Personal interview with the MALS program director
4. An essay of approximately five double-spaced, typewritten pages, detailing personal and academic goals to be satisfied by the MALS program and suggesting curriculum to be designed to meet these goals
5. Two letters of recommendation

B. Program Requirements

1. Acceptance by the MALS program director of a MALS Contract
2. Completion of program core: UNIV 7000, 7100, 7200, 7996
3. Completion of 21 semester hours of approved graduate courses taken from at least two different departments, no more than 9 semester hours of which can be at the 6000-level. No more than 12 semester hours of courses can come from a single department.
4. No more than nine semester hours of transfer credit. Credit previously earned at another university must be presented for evaluation not later than the end of the student's second semester of enrollment.
5. Successful completion of UNIV 7996 Special Project, followed by an oral presentation and defense
6. Successful completion of an oral or written comprehensive examination

UNIVERSITY COLLEGE (UNIV)

7000. Foundations of Liberal Studies. (3). Analytical introduction to graduate liberal studies and its theoretical framework; readings in and concerning the humanities, social sciences, and natural sciences. PREREQUISITE: Approval of MALS program coordinator. Must be taken during the first semester in the MALS program.

7100. Research in Liberal Studies. (3). Methods of inquiry and research appropriate to graduate liberal studies. PREREQUISITE: Approval of MALS major advisor and MALS program coordinator.

7200. Liberal Studies Seminar. (3). Interdisciplinary examination of major issue, historical period, theme. Subject matter will change from semester to semester. PREREQUISITE: Admission to MALS program or permission of instructor and MALS program coordinator.

7796. Independent Study. (3). Research into interdisciplinary area of study supportive of individualized MALS program. May be repeated once. PREREQUISITE: Approval of MALS out-of-class learning contract by instructor of record, student's major advisor, and MALS program coordinator.

7996. Special Project. (3). Supervised research based upon knowledge and skills learned in MALS program. Creative or performance component acceptable. PREREQUISITE: Successful completion of UNIV 7100; approval of MALS special contract by major advisor and MALS program coordinator.

JUDAIC STUDIES (JDST)

6840. Israel: Antiquity in Modernity. (3). (Same as ANTH 6840). Interdisciplinary examination of relationship between ancient traditions and modern issues in Israel. Emphasis on relationship between historical conditions, conflicts, and interconnections and new choices facing Israel.

6841. Biblical Archaeology. (3). (Same as ANTH 6841). Relationship between historical texts in Hebrew Bible and historical evidence from archaeological research in Israel and surrounding area. Emphasis on how archaeological evidence and Biblical narratives illuminate each other.

7796. Independent Study, (3). Directed individual study or research. May be repeated once. PREREQUISITE: Completion of out-of-class learning contract and approval of the director of Bornblum Judaic Studies.

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